



UNITED EASTERN
TECHNICAL & MANAGEMENT TRAINING

Best of the Best in Oil & Gas Talent Management



DRILLING & COMPLETIONS TRAINING PROGRAMS

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SQA Approved Centre
Scottish Qualifications Authority





UETMT- DRILLING AND COMPLETIONS PROGRAMS LEVELS



1
LEVEL

PROGRAM LEVEL	PROGRAM CODE	PROGRAM TITLE	PROGRAM DURATION
AWARENESS LEVEL	UETMT-DRG-1-101	Introduction to Drilling	5 days
	UETMT-DRG-1-102	Rotary Drilling Awareness	2 days
	UETMT-DRG-1-103	Rig Engineering Fundamentals	5 days
	UETMT-DRG-1-104	Basic Drilling Fluids	5 days
	UETMT-DRG-1-105	Basic Directional Drilling	5 days
	UETMT-DRG-1-106	Basic Drilling Technology	5 days
	UETMT-DRG-1-107	Basic Drill String Design & Inspection	5 days





INTRODUCTION TO DRILLING

UETMT-DRG-1-101

Program Duration: 5 days

Program Level: Fundamental

ROTARY DRILLING AWARENESS

UETMT-DRG-1-102

Program Duration: 2 days

Program Level: Fundamental

PROGRAM OVERVIEW

The program is intended for individuals who will work closely with Drilling departments within their companies. The program will give participants a complete understanding of the processes involved in the Drilling of Oil and Gas Wells.

TARGET AUDIENCE

- This program is intended for everyone in finding out about Drilling.
- It will give an understanding of Drilling to Non-drilling Professionals.

TARGET COMPETENCIES

- Standard Drilling Instructions (SDI)
- Drilling Manual (DM) and Guidelines
- Fundamentals of Drilling System and Services

PROGRAM OBJECTIVES

By the end of the program, participants will be able to

- Understand Oil & Gas Field Lifecycle
- Understand Roles and responsibilities of the drilling team
- Identify Rig Types and Components
- Identify all risks of Well Construction
- Identify Bit Types, features, and applications

PROGRAM CONTENT

Day 1: Well Construction Overview

- Oil & Gas Field Lifecycle
- Interaction with other disciplines
- Well Construction Risks
- Roles and responsibilities of the Team
- Rig Types and Equipment

Day 2: Well Design Overview

- Geology Fundamentals
- Timeline and long lead times
- Preliminary Well Preparation
- Cost Estimation

Day 3: Casing and Directional Drilling

- Casing and Cementing Overview
- Directional Wells; Types and Applications
- Deflection Tools and Kick off Techniques
- Bit Types, features, and applications

Day 4: Geodetic Coordinates, Drilling Fluids and Well Control

- Geodetics and Coordinate Systems
- Surveying
- Drilling Fluids
- Kick Causes, Prevention, and Detection
- Well Control Equipment

Day 5: Well Execution and Real-Time Operations

- Risk Management
- Typical Drilling Problems and Operations Risks
- Failure Prevention
- Real-time concepts, infrastructure, and Monitoring

PROGRAM OVERVIEW

This two days program provides an in depth insight into the use of Rotary Drilling Techniques within geo-technics. The program will look at the optimum techniques to obtain the information or parameters required or to maintain hole integrity for installations. The content is relevant for Rotary Drilling for ground investigations.

The program is a unique opportunity to learn about Drilling Techniques as well as assessing and observing Rigs in Operation. The content will include Drilling Techniques and equipment, advantages and limitations and new technologies as well as the legislative requirements which impact on Rotary Drilling.

TARGET AUDIENCE

This program is a must for inexperienced Rotary Operators, as well as Geotechnical Practitioners Supervising Rotary Drilling Operations so that they can understand the Drilling activity, maximize core recovery and quality of the work and interact more knowledgeably with the Drill Crews and Engineers.

TARGET COMPETENCIES

- Rotary Drilling (Awareness)
- Rotary Drilling Techniques and Equipment
- Sonic (Rota-Sonic)

PROGRAM OBJECTIVES

By the end of the program, participants should be able to:

- Have an appreciation of different Rotary Drilling Techniques and equipment
- Understand the Advantages and limitations of different Techniques
- Check the Safety and Environmental compliance of the Rig
- Understand the documentation to be checked
- Carry out a simple Rig Audit

PROGRAM CONTENT

Day 1

- Updates on current International Standards in relation to Drilling
- Rotary Drilling Techniques and Equipment:
 - Percussive inc. Window Sampling and Down the Hole Hammer; Open Holing and Coring - conventional and wireline including an in-depth look at the Geobor S system

Day 2

- Advantages and Limitations of the Techniques
- New techniques and innovations: Sonic (Rota-Sonic)
- Flush mediums including use of Polymers
- Health and Safety – PUWER & LOLER inc. Rig Guarding 16228
- Health and Safety Audit on Drill Rigs
- Environmental Issues





RIG ENGINEERING FUNDAMENTALS

UETMT-DRG-1-103

Program Duration: 5 days

Program Level: Fundamental

PROGRAM OVERVIEW

The program is intended for individuals who will be working closely with Drilling Engineering team within their companies.

This program will give participants a complete understanding of Rig Engineering Principals, Codes & Standards.

TARGET COMPETENCIES

- Oil Well Drilling Engineering and Operations
- Field Equipment Practices
- Fundamental Equations and Calculations in Drilling Engineering
- Wellbore
- Drilling Cost Evaluation

PROGRAM OBJECTIVES

By the end of the program, participants will be able to learn and understand

- Oil Well Drilling Engineering and Operations
- Techniques, Operational Procedures for the successful Drilling and Construction of Wellbore.
- Drilling Cost Evaluation
- Basic understanding of various Tools and Techniques
- Design Aspects of Drilling Equipment
- Offshore Drilling Engineering and Modern Drilling Practices.
- Fundamental Equations and Calculations used in Drilling Engineering
- Various aspects related to Costing and Cost Calculations
- Be acquainting with field Equipment Practices, difficulties and actions to be taken

PROGRAM CONTENT

DAY 1: INTRODUCTION TO DRILLING

- Drilling definition and concepts
- Life of Well
- Different Types of Wells
- Planning of Well

RIGS

- Drilling Methods
- Types of Drilling Rigs
- Rotary Drilling Rig Components
- Different Systems of Rotary Rig
- Introduction to Components of Rotary System, Hoisting System
- Basic Rig Calculations

DAY 2: BOP SYSTEM

- Well Control Introduction
- BOP Stack
- Annular Preventer
- Ram Preventer

FLUID CIRCULATION

- Mud Circulating System
- Equipment in Mud Circulating System
- Pressure Losses-Surface and Subsurface
- Rig Hydraulics
- Critical Fluid Velocity
- Hydraulics Calculations



DAY 3: MOTION COMPENSATION SYSTEM

- Vessel Stability
- Metacentre, Centre of Buoyancy, Centroid
- Environmental Considerations for Vessel Stability
- Different types of Vessel Motion
- Heave Compensation

MUD PUMP DESIGN DESCRIPTION

- Types of Mud Pump
- Working Principal
- SPM
- Mud Pump Capacity
- Mud Pump Calculations

DAY 4: PLATFORM TYPES AND DESCRIPTION

- Types of fixed Platform
- Types of Mobile Platform
- Selection Criterion
- Installation of Offshore Structures
- Platform parts Description

DRILL BITS SELECTION AND DESIGN CRITERIA

- Types of Drill Bits
- Selection of Bit
- IADC Bit Classification
- Bit Nomenclature
- Bit Design
- Bit Economics

DAY 5: MARINE RISERS

- Drilling Riser
- Riser Connector
- Riser Tensioner
- Ball/Flex Joint

COST AND AVAILABILITY

- Intangible Drilling Costs
- Tangible Drilling Costs
- Drilling Time and Cost
- Well Characteristics
- Dependent Costs
- Cost Calculations



BASIC DRILLING FLUIDS

UETMT-DRG-1-104

Program Duration: 5 days

Program Level: Fundamental

PROGRAM OVERVIEW

This program builds a Firm Foundation in the Drilling Fluids, Chemistry, Hydraulics, Solid Control and Drilling Fluid hole Problems. Its emphasis on the hole Stability and the impact of using the proper mud for the hole. All the participants work in designing the proper mud for the hole.

TARGET AUDIENCE

Senior Drilling Crews

TARGET COMPETENCIES

- Oil, Gas and Water Fluid Properties
- Drilling Fluids Planning and Circulating Systems

PROGRAM OBJECTIVES

By the end of the program, participants will be able to

- State the principles for Controlling Drilling Fluids and Solids Control.
- Provide emphasis on the application of current and developing Technologies.
- Understand How Technologies affect the Drilling Operations.
- Provide insight into the day -to-day Operations, popular Drilling Fluid types and recurring Solids Control Problem.
- Acquire remedial action quickly, inexpensively and with maximum- hole making results.

PROGRAM CONTENT

Day 1: Drilling Fluids

- History
- Purpose
- Types
- Properties
- Testing

Day 2: Drilling Fluids Chemistry

- Suspensions
- Reactions
- Polymers
- Corrosion
- Lubricity
- Foaming

Day 3: Drilling Fluids Engineers

- Hydraulics
- Hole Stability

Day 4: Mud Products & Mud Formations

- Detrimental Effects of Solids
- Mechanical Control
- How to Measure Solids Control Effectiveness.

Day 5: Hole Problem

- Stuck Pipe
- Lost Circulation
- Contamination of water -Base Drilling Fluids.
- Controlled Activity Oil Mud

Mud Engineers & Mud Service Companies

- People involved
- Purpose
- Training

Solids Control

- How Solids Build Up
- Detrimental Effects of Solids
- Mechanical Control
- How to Measure Solids Control Effectiveness

Problem Solving Techniques

- Drilling Indicators
- Property Monitoring

BASIC DIRECTIONAL DRILLING

UETMT-DRG-1-105

Program Duration: 5 days

Program Level: Fundamental

PROGRAM OVERVIEW

The program is about the Principles and Practices of Directional Drilling, Calculations, and Planning for Directional and Horizontal Wells.

This program is designed to cover the both Directional and Horizontal Drilling, its include Downhole Motor, and Bottom Hole Assemblies, Survey Tools, Survey Equipment, the Theory of the Deviation and the impact of Formation Dip.

Participants will be able to Design and Plan both the Directional and Horizontal Well, Solve the Problems while Drilling.

This program will provide a basis for delegates to build on the knowledge gained by practical application in the field.

TARGET AUDIENCE

- Drilling Engineers
- Junior Rig Personnel who are involved in designing, Planning and Drilling Horizontal Wells.

TARGET COMPETENCIES

- Directional, Horizontal and Multilateral Drilling
- Oilfield Directional Drilling
- Utility Installation Directional Drilling (Horizontal Directional Drilling)
- Directional Boring
- Surface In Seam (SIS)

PROGRAM OBJECTIVES

By the end of the program, participants will be able to:

- Select the correct type of Well for specific purposes.
- Plan the Well given Well head, and target data.
- Select the appropriate down hole tools to drill the Well.
- Understand the Operation of down hole measuring equipment.
- Interpret Survey Data, carry out survey calculations and plot survey positions on the will plan.
- Recognize and avoid down -hole problems.
- Analyze Well shapes and project ahead.

PROGRAM CONTENT

Day 1

- Directional Drilling Systems
- Directional Drilling Applications
- Surveying methods
- Calculation Methods

Day 2

- Directional Drilling Systems
- Directional Drilling Applications
- Surveying methods
- Calculation Methods

Day 3

- Horizontal Drilling Methods and Applications
- Logging High Angle Wells
- Hole Cleaning
- Multi-Laterals

Day 4

- Types of Survey Instruments
- Tools used to Deflect a Wellbore
- Torque and Drag Calculations
- Cementing

Day 5

- Drilling Fluids Requirements For Horizontal Drilling
- Completion of Horizontal Wells
- Practical Simulator Exercises on the personal computer.



BASIC DRILLING TECHNOLOGY

UETMT-DRG-1-106

Program Duration: 5 days

Program Level: Fundamental

PROGRAM OVERVIEW

Technical and Operational Decision Makers must grasp the Language and Technology of Drilling Operations in order to minimize expenditures throughout the Producing Life of a Well. Successful Drilling requires blending many Technologies. Drilling Equipment and Procedures have a unique language that must be conquered for maximum benefit. Clear understandable explanations of Drilling Rig Equipment, Procedures, and their complex interactions provide an excellent basis to organize cross-trained team efforts.

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Petroleum and Production Engineers
- Service and Support Personnel and entry Level Drilling Staff

TARGET COMPETENCIES

- Fundamentals of Drilling Technology
- Drilling Equipment
- Planning a Successful Well

PROGRAM OBJECTIVES

By the end of this program, participants will be able to know

- Rig Types
- Drilling Rig Equipment and how it is being used
- Common Drilling Problems and how to avoid them
- Keys for Planning a successful Well
- The role of key players in an efficient Drilling Operations
- Drilling Terminology

PROGRAM CONTENT

Day 1

- The overall Drilling Process
- The Language of Drillers: Understanding their Terminologies
- Rig Equipment

Day 2

- Rig Types,
- Drill Bits MWD,
- Drill Strings,
- Solids Management,

Day 3

- Well Control,
- Tank Arrangement
- Rig Operations
- Drilling Fluids,

Day 4

- Cementing Casing Design
- Understanding Morning Reports
- Hole Problems: Stuck Pipe, Lost Returns, Well Control
- MWD and Directional Drilling Operations and Tools

Day 5

- HSE Requirement for Drilling
- Philosophies of Drilling Operations
- Drilling Trends and new Technology

BASIC DRILL STRING DESIGN & INSPECTION

UETMT-DRG-1-107

Program Duration: 5 days

Program Level: Fundamental

PROGRAM OVERVIEW

The Program focus on the Design Process, reason of failure and Prevention Procedures

TARGET AUDIENCE

- Junior Drilling Engineers
- Drilling Supervisors

TARGET COMPETENCIES

- Drill String Design (DSD)
- Drill Pipe Specifications and Connections
- Bottom Hole Assembly and Drill String Dynamics
- Drill String Care and Inspection

PROGRAM OBJECTIVES

- The aim of this Standard Procedure is to reduce the probability of Drill Stem Failures in Drilling Operations.
- To accomplish this goal, this standard summarizes Drill Stem Design practices, gives recommended inspection procedures for drill stem.
- Components and outlines methods for certifying Inspection companies

PROGRAM CONENT

Day 1: Introduction:

- Scope
- General information and definition for the Standard

Day 2 & 3: Design

- Procedures for Drill Stem Design
- Industry accepted design formulas
- Design methodology

Day 4 & 5: Inspection

- Presents recommended inspection methods
- Required Procedures for used Drill Pipe
- Rotary shouldered connections
- Heavy weight drill pipe and drill collars





PROGRAM LEVEL	PROGRAM CODE	PROGRAM TITLE	PROGRAM DURATION
FOUNDATION LEVEL	UETMT-DRG-2-101	Drilling Engineering	5 days
	UETMT-DRG-2-102	Applied Drilling Technology (A Workshop Approach)	10 days
	UETMT-DRG-2-103	Well Control	5 days
	UETMT-DRG-2-104	Well Completion	5 days
	UETMT-DRG-2-105	Drilling Fluids	5 days
	UETMT-DRG-2-106	Drilling Fluids Technology	5 days
	UETMT-DRG-2-107	Drilling Fluids & Related Problems	5 days
	UETMT-DRG-2-108	Coiled Tubing Interventions	5 days
	UETMT-DRG-2-109	Drilling Operations	5 days
	UETMT-DRG-2-110	Drill Bit Technology	5 days
	UETMT-DRG-2-111	Drilling Operations - Basic	5 days
	UETMT-DRG-2-112	Sand Control	5 days
	UETMT-DRG-2-113	Prediction and Control of Sand Problems	3 days
	UETMT-DRG-2-114	Pore Pressure Prediction	5 days
	UETMT-DRG-2-115	Hole Cleaning	3 days
	UETMT-DRG-2-116	High Pressure/High Temperature Cementing Practices Planning, Execution & Evaluation	5 days
	UETMT-DRG-2-117	Casing Design Pressure & Gradients	5 days
	UETMT-DRG-2-118	Managed Pressure Drilling- Application, Design & Execution	5 days
	UETMT-DRG-2-119	Hydraulic Fracturing Applications	5 days
	UETMT-DRG-2-120	Solids Control System	5 days
	UETMT-DRG-2-121	Oil- Base Mud Technology	5 days
	UETMT-DRG-2-122	Offshore Rigs	5 days
	UETMT-DRG-2-123	Electrical Submersible Pumps	5 days
	UETMT-DRG-2-124	Operation & Maintenance of Rotating Equipment	5 days
	UETMT-DRG-2-125	Wireline & Formation Evaluation	5 days
	UETMT-DRG-2-126	Safety Practices in Wireline	5 days





DRILLING ENGINEERING

UETMT-DRG-2-101

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program will expose participants to the terminology, concepts, processes, and equipment used to drill Oil and Gas Wells. The Planning Process followed by Drilling Engineers will be covered to the extent that participants will understand the Process and be able to initiate a Well Plan and Well Design. Non-complex calculations and basic problems will be included so that participants will see how this is done by the Drilling Engineer. This program will serve to introduce the entry level Drilling Engineer to the profession.

TARGET AUDIENCE

This program is aimed at Entry Level Drilling Engineers.

TARGET COMPETENCIES

- Standard Drilling Instructions (SDI), Drilling Manual (DM) and Guidelines
- Fundamentals of Drilling System and Services
- Site Preparation, Construction and Drilling Environment
- Drill String Design (DSD)
- Directional, Horizontal and Multilateral Drilling
- Drilling Problems and Performance Optimization

PROGRAM OBJECTIVES

Upon completion of the program, participants should be able to:

- Identify Rig Components, make simple rig sizing calculations, as well as describe basic drilling fluids, drill bit selection concepts, directional drilling plans, and tools used in the Drilling Technology.
- Additionally, some cost estimating processes, fundamentals of well control, drilling tool selection, and the important standards used in the Drilling Industry will be covered.

PROGRAM CONTENT

Day 1: The Well Construction Process

- Where drilling fits into the Exploration and Production (E&P) Process
- Exploration, appraisal, and Development Drilling
- Rig components and Operation Organization
- Risk Management, Hazards, and Loss prevention methods

Day 2: Drilling Fundamentals

- Sedimentary Rock types, properties, and impacts on drilling
- Formation pressures and formation fracture gradient
- Predicting overpressure methods and detection
- Wellbore instability

Day 3: Preliminary Well Design

- Preliminary Processes
- Components and contributors of Well Design
- Directional Drilling

Day 4: Programming and Drilling

- Components and contributors of Drilling programming
- Operations
- Problems: Preventions and Solutions
- Calculations for killing a Well

Day 5: Evaluating and Completing

- Types of evaluation methods and application
- LWD and Geo-steering
- Well completion schematics and completion string
- Intelligent completions
- Well suspension and abandonment techniques

APPLIED DRILLING TECHNOLOGY (A WORKSHOP APPROACH)

UETMT-DRG-2-102

Program Duration: 10 days

Program Level: Foundation

PROGRAM OVERVIEW

During the Program participants will learn techniques and acquire skills to help them drill a safe and usable well from spud to release.

A theoretical well is drilled in the classroom and each section of the well is analyzed.

TARGET AUDIENCE

- Engineers at all levels, and Operating Personnel, (Drillers, Drilling Foremen, Drilling Superintendents, and Drilling Managers)
- Non-Drilling Personnel with a "need to know" requirement.

TARGET COMPETENCIES

- Rotary Drilling
- Cementing Planning
- Hydraulics Planning and Program

PROGRAM OBJECTIVES

The program will emphasize on the practical "How To" approach and participants will be able to take the Program material and apply it directly to their own operation.

Well Control theory and application is presented along with Drilling Operations since the two are inseparable. The Program is intensive and hardworking and participants will test their knowledge by completing workshops following specific subjects.

PROGRAM CONTENT

Day 1

- Rig Math Review
- Drill String Design
- Pre-Spud Considerations
- Spudding the Well
- Drilling the Top Hole

Day 2

- Hydraulics
- Solids Control
- Lost Circulation
- Stuck Pipe
- Corrosion, Washouts and Twist-Offs

Day 3

- Care and Handling of Tubulars
- Drill Bit
- Tripping
- Casing and Cementing Operations
- Nippling up and Testing BOP

Day 4

- Evaluating the Cement Job
- Drilling Out
- Leak-Off/Formation Capability Tests
- Mud Practices
- Shales
- Abnormal Pressures

Day 5

- Well Control and Simulation
- Diamond and PCD Bit Practices
- Drilling the Gas Cap/Hydrocarbon Zone
- Cement Plugs
- Liners and Liner Cementing
- Hydrogen





WELL CONTROL

UETMT-DRG-2-103

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

This course will teach participants about the physical principles and concepts related to maintaining and regaining Pressure Control of Wells while Drilling. Starting from concepts of Formation Pressure, Fracture Pressure, and factors which affect inflow

Participants will gain an understanding of the elements of primary and secondary Well Control methods.

Well Design concepts to improve Pressure containment and reduce risk of secondary Well Control situations will be covered in detail.

TARGET AUDIENCE

- Drilling Supervisors
- Drilling Engineers
- Drilling Superintendents,
- This course would benefit all personnel who design, plan, and manage drilling operations.

TARGET COMPETENCIES

- Well Control Equipment
- Well Control
- Wireline Operations
- Wellhead Equipment Design

PROGRAM OBJECTIVES

Upon completion of the program, participants should be able to:

- How to identify potential Well Control situations in advance of their occurrence.
- A brief overview of Well Control Equipment, their Operation, and Testing will be covered to the extent necessary for the participants to identify requirements in the Well Planning phase.
- Classical Well Control methods will be covered and several Well Control problems will be worked using several standard Well Control worksheets.

PROGRAM CONTENT

- **Introduction**
- **Class Discussion:** Common drilling practices and problems which impede drilling progress
- **Pre-Spud and Spud Considerations:** Government regulations: pre-spud meetings; well problems; well control equipment and procedures; rig condition; deviation control.
- **Initial Evaluation:** Covers well control and general drilling subjects to establish the strengths and weaknesses of the class. Results are analyzed to be certain that weak areas are emphasized during the course.
- **Math Review for Well Control and Drilling Operations:** a ten minute review of basics; area and volume calculation; circulating system calculations; well control calculations; conversion between traditional and SI units.
- **Well Control:** Closing in procedures; kill sheets and calculations introduction to wait and weight method.
- Simulator Practice Number One (Surface Stack)
- Problem number one to introduce the simulator
- Students to work on homework assignments when not on simulator
- Review of Past Blowouts
- Shallow Shoes and Fracture Gradients



- Determining the Maximum Allowable Annular Surface Pressure (MAASP)– pressures defined
- Diverters and the Diverting Operation
- **Large Top Hole Drilled Gas:** The Effect of Gas Cutting
- Tripping in Shallow Gas Formation; Loss of Overbalance in Top Hole
- Causes of Kicks
- Transition Zones and Transition Zone Indicators - The warning signs of kicks
- **The Closed-In System:** The pressure effect of kick size; calculating the length of influx; Calculating the gradient of the influx calculating the maximum estimated surface pressure and pit gain; calculating the estimated position of the influx while circulating; calculating the estimated percolation rate; bleeding pressure during the shut-in period.
- Simulator Practice Number Two (Surface Stack)
- **Methods of Control:** Wait and weight; driller's; concurrent; low choke; volumetric.
- Pump Start-Up: using a standpipe hand adjustable choke; the calculated TCP vs. the actual ICP; choke line friction considerations.
- Limitations to Control Capability; the amount and intensity of the kick; method of closing-in; choice of W.C. methods; method of start-up and reaching ICP and FCP; casing, shoe and equipment limitations; dealing with the MAASP.
- **BOP Drills (Surface and Subsea Stacks):** on bottom; while tripping; when out of the hole; choke panel drills; accumulator drills; government regulations.
- **Nippling Up and Testing BOPE:** government regulations; well control equipment; equipment limitations; choke manifolds; accumulator design.
- Drilling Fluids and Well Control
- Simulator Practice Number Three (Surface or Subsea Stack)
- **Drilling Out and Testing Casing:** bits, BHA and practices; the casing test; leak-off test procedures; additive pressures.
- **Gas Column Drilling:** How the problem develops; LCM/cement/gunk/barite plugs.
- **Differential Sticking in the Transition/Abnormal/Pressure Zone:** problem development; freeing techniques.
- Lubricating and Stripping Operations
- Well Control Considerations While Running Casing and Liners: the metal displacement schedule; floats and fill-up equipment; running speed; BOPE.
- **Gas Intrusion Into the Annulus After Cementing:** how the problem develops; suggested methods to prevent the problem.
- Supervising Well Control Operations
- Simulator Practice Number Four (Surface or Subsea Stacks)



WELL COMPLETION

UETMT-DRG-2-104

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

- This course covers the Drilling Risks and the Drilling Problems, impact of these problems on Production, Formation Damage and Treatment, open hole completion and the basic completion.
- Several new techniques had been employed, such as Under-balance Drilling, Multilateral holes, Zonal isolation for water shut off and gas shut off to save the reservoir power.

TARGET AUDIENCE

- Engineers at all levels, and Operating Personnel, (Drillers, Drilling Foremen, Drilling Superintendents)

TARGET COMPETENCIES

- Well Completion Design and Equipment
- Completion Fluids
- Perforating
- Sand Control

PROGRAM OBJECTIVES

- This program is designed to give an overview to all the Drilling Parameters and Process, impacts of the Drilling Fluid on the Formation, have worked the best to get the latest technologies result for the least cost and increase production, find out what Drilling techniques serve to increase the reserve of the production.
- Participants will able to design the completion string for production optimization.

PROGRAM CONTENT

Day 1: Overview of the Drilling Process

- Overall Drilling Practices
- Language of Drilling
- Reservoir Rock and Fluid Properties
- Rigs & Rig equipment
- Drilling string components & design
- Bits
- Drilling fluids & Hydraulics
- Rig Operation
- MWD

Day 2: Overview of the Drilling Process

- Well Control
- Hole Problems & Stuck Pipe
- Drilling Risks
- Cores and Coring
- Casing design & Installation
- Primary Cementing
- Directional, Horizontal, Multilateral & Under-balanced Drilling
- Wellhead & Trees

Day 3: Overview of the Completion Process

- Zonal Isolation
- Tubing, packers & completion equipment
- Safety & Flow Control Devices

Day 4: Overview of the Completion Process

- Open hole completions
- Basic completion types
- Perforating

Day 5: Overview of the Completion Process (Cont.)

- Open & cased hole logging
- Formation damage & treatment
- Completion fluids Multiple completions

DRILLING FLUIDS

UETMT-DRG-2-105

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

This program will take participants through a comprehensive look at the functions of Drilling Fluids. It will address how to Engineer a Mud System, as well as cover water based, oil based, and synthetic Mud Systems.

TARGET AUDIENCE

Drilling Engineers with a basic knowledge of Well Design Principles

TARGET COMPETENCIES

- Circulation System
- Drilling Fluids Planning and Circulating Systems

PROGRAM OBJECTIVES:

By the end of the program, participant will be able to:

- Understand Drilling Fluids Properties & Functions
- Know the difference between Water Based & Oil Based Mud Systems
- Understand System Circulation and Pipe Problems
- Know Well clean up and displacement procedures

PROGRAM CONTENT

Day 1: Basics of Drilling Fluids

- Functions of Drilling Fluids
- Composition of Water based Mud
- Clay Chemistry
- Rheology

Day 2: Water Based & Oil Based Mud Systems

- Products and Systems
- High Performance WBM
- Oil and Synthetic based Mud products and Systems

Day 3: System Circulation and Pipe Problems

- Lost Circulation
- Stuck Pipe Problems
- HPHT challenges
- HPHT applications and Systems

Day 4: Drill Care

- Hole Cleaning
- Virtual Hydraulics and real time measurements
- Reservoir drill-in Fluid System
- Completions Fluid
- Well clean up and displacement Procedures

Day 5: Equipment and Future Technologies

- Solid Control Equipment
- Emerging Technologies





DRILLING FLUIDS TECHNOLOGY

UETMT-DRG-2-106

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program is designed for Engineers and Field Personnel involved in the Planning and Implementation of Drilling Programs. The program covers all aspects of Drilling Fluids Technology, emphasizing both Theory and Practical Application. Hands-on Laboratory Exercises are included in the five-day program.

Drilling is a complex Operation requiring the marriage of different Technologies and Disciplines. Today's Drilling Personnel must have a working knowledge of Drilling Fluid in order to effectively Drill a Well. The program provides the Fundamentals necessary to Drill a Well, whether it is a Shallow Well or a Complex, High Pressure Well.

TARGET AUDIENCE

- Mud and Drilling Engineers
- Supervisors
- Petroleum Engineers
- Tool Pushers
- Technical Support Personnel involved with Drilling Operations

TARGET COMPETENCIES

- Fluid Sampling and Lab Testing
- Fluid Components and Phase Envelopes

PROGRAM OBJECTIVES

By the end of the program, participant will be able to:

- Use Clay and Polymers to achieve desired Mud Properties
- Apply Water Chemistry to the Treatment of Drilling Fluids
- Perform a complete Drilling Fluids Tests
- Evaluate the information on an API Water-based and non-aqueous Drilling Fluid Report
- Identify Drilling Fluid contaminants and prescribe Corrective Treatments
- Select Water phase Salinity and activity for bore Hole Stability
- Select non-aqueous Fluids to meet Drilling requirements and Environmental Concerns
- Manage non-aqueous Drilling Fluid Systems

PROGRAM CONTENT

Day 1

- Composition and Properties of water-based Drilling Fluids
- Analysis of API water-base mud, Oil Base and non-aqueous Drilling Fluid Report

Day 2

- Identification and Treatment of Drilling Fluid Contaminants
- Composition and Properties of Water-based and non-aqueous Drilling Fluid systems

Day 3

- Selection of Water Phase Salinity for Borehole Stability
- API water-based and non-aqueous Drilling Mud Tests

Day 4

- Adjustment of non-aqueous Drilling Fluid Properties
- Managing Invert Emulsion Fluid Systems

Day 5

- Rig Preparation and Displacement
- Non-aqueous Drilling Fluids designed for Environmental Compliance

DRILLING FLUIDS & RELATED PROBLEMS

UETMT-DRG-2-107

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

This 5-days program covers all aspects of Drilling Fluids Technology, emphasizing theory and practical application, technical concepts and specific Drilling Fluids selection steps for the key Planning Processes of Drilling Fluids and Hydraulics. Participants will gain a thorough understanding of the entire Technology, related Problems, Testing Procedures and Specific Design Steps.

TARGET AUDIENCE

- Drilling and Production Engineers, Mud Engineers & Drilling Supervisors

TARGET COMPETENCIES

- Fluid Displacement Concepts
- Non-Uniform Fluid Movement
- Flow Control Equipment and Flow Lines

PROGRAM OBJECTIVES

By the end of the program, participant will be able to:

- Understand the Functions of Drilling Fluids
- Select Drilling Fluids & Understand Drilling Fluids Testing Procedures
- Understand the Contaminants of Drilling Fluids
- Use Solids Control Equipment
- Understand Rig Hydraulics
- Deal with bore-hole Problems related to Drilling Fluids, Pressure Prediction and Control
- Be familiar with Drilling Fluids for Work-over and Horizontal Drilling
- Briefly describe the different types of indirect thermal adsorption units commonly used in the oilfield for Drill Cuttings Treatment
- Determine the Quality of Fluids recovered from a low temperature indirect thermal Desorption Process

PROGRAM CONTENT

Day 1

- Introduction to Drilling Fluids
- Functions of Drilling Fluids
- Drilling Fluids selection Criteria:
 - What Fluid Combinations provide the best results in specific Environments?
 - Oil Based Mud
 - Composition and Properties of Oil Based Mud
 - Application of oil based Fluids in Drilling through shales
 - Completing Wells with particular emphasis on Horizontal Wells
 - In which situation Oil-base Mud is to be used?

Day 2

- Selection and implementation of final Fluid choice in Complex Well Formation
- Drilling Fluids Testing Procedures
- Physical & Chemical Properties of Oil-base Drilling Fluids
- Contaminants of Oil-base Drilling Fluids
- Solids Control Equipment

Day 3

- Rig Hydraulics
- Performance Monitoring
- Work-over Fluids
- Bore-hole Problems related to Drilling Fluids

Day 4

- Pressure Prediction and Control
- Drilling Fluids for Horizontal Drilling
- Different Types of indirect thermal Desorption Units commonly used in the Oilfield for Drill Cuttings Treatment

Day 5

- Quality of Fluids recovered from a LOW temperature Indirect thermal Desorption Process:
 - A detailed Chemical and Physical Analysis
- Engineering Data:
 - How Feasible is it to use the same Fluid for all your Well Construction Operations?
 - How can this success be repeated for other Wells?



COILED TUBING INTERVENTIONS

UETMT-DRG-2-108

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

Coiled Tubing is one of the most common technologies used for Well Intervention on a daily basis throughout the Oil Industry during Drilling, Completion, and mainly production phases of Oil and Gas wells around the world. This program covers the Surface and Pressure Control Equipment, the bottom hole assembly components, the details of the different types of Interventions performed with Coiled Tubing and How to deal with Fatigue and Corrosion. Participants will also learn to calculate the String Operating limits and the volumes and rates during nitrogen interventions. The final part presents an extensive coverage of emergency responses and contingencies to deal with in a wide variety of scenarios. A generous amount of time is spent in practical exercises, and technical concepts are enhanced with pictures, videos and numerous real field cases and problems.

TARGET AUDIENCE

Drilling and Completion Engineers, Production Engineers, Surface/Subsurface Engineers, Operations Engineers and Service company Managers, field Engineers, Supervisors and Operators and those professionals willing to expand their knowledge in Coiled Tubing and Nitrogen interventions planning, design and/or execution.

TARGET COMPETENCIES

- Coiled Tubing (CT) Operations
- Drilling Problems and Performance Optimization
- Underbalanced Drilling (UB) and Managed Pressure Drilling (MPD) Operations

PROGRAM OBJECTIVES

By the end of the program, participant will be able to learn how to:

- Plan, Design, Manage and Execute Coiled Tubing Interventions
- Improve the overall Operational Performance during Coiled Tubing Interventions
- Select or recommend Coiled Tubing equipment for given field conditions and applications
- Select the proper Pressure Control Equipment for any particular Well Condition
- Calculate the appropriate size of accumulators for a Coiled Tubing unit
- Select the most commonly used downhole tools and explain their function
- Calculate and define Coiled Tubing String limits
- Recognize, prevent, and manage corrosive and sour conditions and their impact
- Work safely with liquid Nitrogen
- Calculate Nitrogen volumes required for a given application
- Take appropriate actions during Emergency responses and contingencies

PROGRAM CONTENT

Day 1

- Introduction
- Surface equipment
- Pressure control equipment

Day 2

- Bottom-hole assembly components
- Pumping operations
- Mechanical operations

Day 3

- CT drilling operations
- Coiled tubing strings
- Operational limits

Day 4

- Life estimation (fatigue)
- Corrosion
- String management

Day 5

- Checklists
- Nitrogen
- Emergency responses and contingencies

BIT SELECTION

UETMT-DRG-2-109

Program Duration: 2 days

Program Level: Foundation

PROGRAM OVERVIEW

The Drill Bit represents the heart of the Drill String, and therefore its proper selection and use cannot be overemphasized.

TARGET AUDIENCE

- Drilling Engineers
- Drillers
- Tool Pushers

TARGET COMPETENCIES

- Drilling Bits Program
- Bit Design

PROGRAM OBJECTIVES

The objective of this program is to acquaint the participants with Bit Types and Design, selection Criteria and factors affecting Bit Wear.

PROGRAM CONTENT

Day 1

- Fundamentals of Bit Design and Manufacturing
- Bit Types
 - Drag Bits
 - Rolling Cutter Bits
 - Insert Bits-Seals
 - Friction Bearings
 - Milled Tooth Bits
 - Diamond Bits
 - Polycrystalline Diamond Compact (PDC)

Day 2

- Standard Classification
- Criteria for selecting the Bit for a given Formation
- Standard Methods for Evaluating Bit Dullness
- Factors affecting Bit Wear and Drilling Speed
- Optimization of Bit Weight and Rotary Speed
- Factors affecting Bit Performance





DRILL BIT TECHNOLOGY

UETMT-DRG-2-110

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program emphasized in various Bit Types available, Criteria for selecting the best Bit for a given situation, standard methods for evaluating dull bits, factors affecting bit wear and drilling speed, optimization of bit weight and Rotary speed.

TARGET AUDIENCE

- Drilling Engineer
- Drilling Supervisors
- Senior Engineers
- Team Leaders in Drilling Engineers / Operations

TARGET COMPETENCIES

- Bit Design
- Rotating Cutter

PROGRAM OBJECTIVES

The program is designed to introduce the student with latest Technologies for the selection and Operation of Drilling Bits.

PROGRAM CONTENT

Day 1:

- Bit Types
- Rolling Cutter Bits
- Polycrystalline Diamond Bits
- Standard classification of Bits
- Rock Removal Mechanisms

Day 3:

- Grading Tooth Wear
- Grading Bearing Wear
- Abnormal Bit Wear
- Advanced Drilling Courses
- Factors Affecting Tooth Wear
- Effect of Tooth High on Rate of Tooth wear

Day 5:

- Drilling fluid properties
- Operating Conditions
- Bit Tooth Wear Bit Hydraulics
- Penetration rate equation
- Bit Operation

Day 2:

- Wedging
- Scraping & Grinding
- Erosion by find Jet action Crushing or percussion
- Torsion or twisting
- Failure Mechanisms of Rolling Cutter Bits
- Bit Selection and Evaluation

Day 4:

- Effect of Rotary speed on Rats of tooth Wear
- Factors Affecting Bearing Wear
- Terminating a Bit Run
- Factors Affecting penetration Rate Bit Type
- Formation characteristics



DRILLING OPERATIONS (BASIC)

UETMT-DRG-2-111

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program provides personnel with a basic overview and understanding of oil and gas drilling operations. The program focuses on Drilling Technology, Drilling Rig components, basic Drilling Fluids and Hydraulics, Cementing Operations, downhole Pressures, Drilling problems and solutions.

TARGET AUDIENCE

- Operator staff including Engineering, Geoscience, Operations Supervision, and HSE, Drilling Contractor Rig Crew and Technical Support Personnel,

TARGET COMPETENCIES

- Formation Geology
- Rig Components and Drilling Equipment
- Drill String and BHA Components
- Directional Drilling

PROGRAM OBJECTIVES

By the end of the program, participants will have good understanding of:

- Basic Drilling Operations both Onshore and Offshore
- Basic Drilling Rig Components and functions, Drilling Economics, Formation and fracture Pressures, Drilling Problems, Well Control, Cementing, Directional Drilling and basic Logging Operations.

PROGRAM CONTENT

- Formation Geology
- Rig Components and Drilling Equipment
- Drill String and BHA Components
- Directional Drilling
- Measurement & Logging While Drilling
- Mud Circulation System
- Casing and Cementing
- Surface and Subsea Well Control Equipment
- Common Drilling Problems (Stuck Pipe, Lost Circulation)
- Blowout Prevention
- Shut-in Procedures
- Well Kill Methods





SAND CONTROL

UETMT-DRG-2-112

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

Sand causes a wide variety of costly problems when Oil and Gas are produced from unconsolidated Reservoirs. The most costly problem is usually the loss of Production resulting from Formation Damage caused by poorly planned and/or executed Sand Control Applications.

The program will also teach how to perform Quality Control checks during the Sand Control application to help insure successful wells. Several new sand control technologies have been introduced in the last few years. The proper application of these technologies will be thoroughly covered. Participants will gain a thorough understanding of what is necessary to design and implement cost effective Sand Control in Producing Wells.

TARGET AUDIENCE

Drilling, Completion, Production and Research Engineers; field Supervisors and Production foremen; Technical Personnel who supply services and equipment

TARGET COMPETENCIES

- Sand Control

PROGRAM OBJECTIVES

By the end of the program, participant will be able to

- Determine the Causes of Sand Production
- Determine the need for Sand Control
- Select the best Sand Control method
- Prepare the Well for gravel packs
- Prepack perforations and determine when prepacking is appropriate
- Apply "Best Practices" to ensure successful Sand Control Completions
- Conduct successful "frac packs"
- Evaluate Sand Control Performance
- Minimize Production Losses
- Evaluate new Technologies for proper applications

PROGRAM CONTENT

Day 1:

- Sand control techniques
- Radial flow and formation damage
- Causes and effects of sand production

Day 2:

- Predicting sand production
- Gravel pack design
- Slotted liners and wire wrapped screens

Day 3:

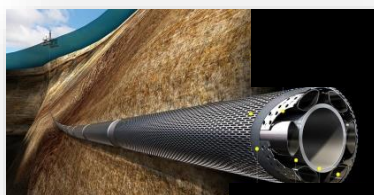
- Gravel pack completion equipment and service tools
- Well preparation for gravel packing
- Perforating for gravel placement techniques

Day 4:

- Perforation prepacking and enhanced prepacking
- Frac packing
- Open hole gravel packing

Day 5:

- Expandable screens
- Gravel pack performance
- Horizontal well completions



PREDICTION AND CONTROL OF SAND PROBLEMS

UETMT-DRG-2-113

Program Duration: 3 days

Program Level: Foundation

PROGRAM OVERVIEW

This program will identify the parameters that must be considered in selecting the Sand Control technique to be used. Each of the various sand control techniques is presented. Examples, problems and case histories will be examined to illustrate key points. Sand control failures will be used to illustrate the types of problems that can lead to early well failures.

The program reviews the difficult issue of deciding when sand control will be needed and explains why gravel packing is usually the best option. Gravel pack design and placement methods are discussed in detail.

TARGET AUDIENCE

- Production; Completion Drilling Engineers and Supervisors with at least five years' experience

TARGET COMPETENCIES

- Field Observations
- Formation Strength Log
- Sonic Log
- Formation Properties Log

PROGRAM OBJECTIVES

- Prediction of Sand Problems
- Determine the causes of sand production
- Determine the need for sand control
- Select the best sand control method

PROGRAM CONTENT

Day 1: Sand Failure Predictions

- Understanding sand production
- Basic rock mechanics
- Sand failure prediction

Sand Control Methods

- Improved Completion efficiency
- Rate Control and Arching
- Selective Perforation
- Plain Screens
- Pre-packed screens
- Gravel Packing
- Consolidation
- Other Methods

Day 2: Gravel Pack Design and Procedures

- Type of gravel pack and their effect on Well performance
- Gravel selection
- Screen and liner considerations
- Packer and liner equipment
- Perforation and cleaning methods
- Gravel placement
- Gravel pack fluids
- Formation damage
- Special considerations.

Day 3: Horizontal Well Completions:

- Completion options
- Design considerations
- Drilling fluid selection
- Completion procedures.

Discussion of Case Histories and Local Situations



PORE PRESSURE PREDICTION

UETMT-DRG-2-114

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

This program covers the fundamental principles of Pore Pressure Prediction and application to Oil field problems.

TARGET AUDIENCE

- Drilling Personnel involved in Drilling Well Design and Operations

TARGET COMPETENCIES

- Shale Discrimination
- Eaton Method
- Display Calibration Data from Drilling

PROGRAM OBJECTIVES

By the end of the program, participant will be able to

Having the ability to judge the extent of expertise needed for the Pore Pressure job you are confronted with. This program can be achieved by understanding the following aspects:

- Processes Responsible for Abnormal Pressure
- Methods of Pore Pressure Prediction and Detection
- Data Requirements & How to Deal with Data Gaps
- Advantages and Disadvantages of Seismic and Resistivity based Pore Pressure Prediction
- Real Time Updating and Uncertainty Analysis

PROGRAM CONTENT

Day 1:

- Geological occurrence and processes responsible for abnormal pressure, Definitions and importance of pore pressure in exploration and drilling, The concept of effective stress, Pore pressure prediction and detection, Seismic-based methods, Resistivity-based methods

Day 2:

- Data audit, data requirements and how to deal with data gaps, Density and the calculation of vertical stress, Practical Exercise on vertical stress determination, Fracture gradient, formation integrity and leak-off tests for minimum horizontal stress determination, Relation between pore pressure and fracture gradient, Practical Exercise on determination of minimum horizontal stress, Exercises on pore pressure prediction and divide Homework – Team Team-based Pore Pressure Exercise

Day 3:

- Advanced methods: Impact of faults on pore pressure prediction, advanced methods: Uncertainty, real-time updating and sub-salt pore pressure prediction- Afternoon - Discussion

Day 4:

- Rock Mechanics Basics - Principal stresses, pore pressure and effective stresses - Stress & strain - Elasticity, yield and Failure State of Stress in the Earth – fundamentals – Measurements - modelling

Day 5:

- Mechanical Earth Model Construction - Types of MEM - input data - Deformation mechanisms - stress modeling - rock characterization

HOLE CLEANING

UETMT-DRG-2-115

Program Duration: 3 days

Program Level: Foundation

PROGRAM OVERVIEW

The program is designed to familiarize the attendees with the concepts of designing Hydraulic and rheological programs to ensure avoiding these problems. Possible problems and hazards associated with hole cleaning are reviewed.

TARGET AUDIENCE

- Mud Engineers
- Drilling Engineers
- Technicians

TARGET COMPETENCIES

- Annular Velocities
- Drilling-fluid Viscosity
- Static and Dynamic Temperature Profiles
- Hydraulic Pressures

PROGRAM OBJECTIVES

The program allows the participants to obtain up-to-date information on hole cleaning problems, causes, and prevention. Drilling Fluids rheology and hydraulics responsible for such problems are discussed.

PROGRAM CONTENT

Day 1:

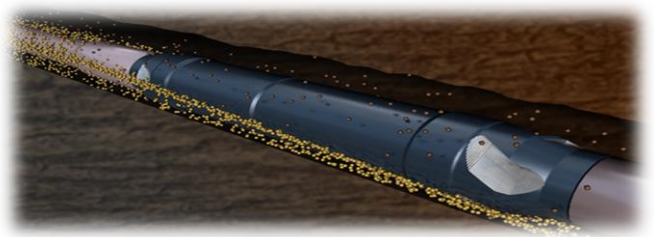
- Introduction to Well Planning
- Importance of rheology
- Well Hydraulics

Day 2:

- Hole Stability
- Cutting Transport
- Solids removal equipment
- Drilling Optimization
- Avoiding Stuck Pipes

Day 3:

- Drilling Problems related to hole cleaning
- Stuck Pipe
- Water Kicks
- Shale Problems





**HIGH PRESSURE/HIGH TEMPERATURE CEMENTING PRACTICES
PLANNING, EXECUTION & EVALUATION**

UETMT-DRG-2-116

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The main purpose of the program is to learn How to Plan, Execute & Evaluate a High-Pressure High Temperature Cement job.

TARGET AUDIENCE

- Drilling Engineers
- Drillers
- Tool Pushers
- Technicians

TARGET COMPETENCIES

- Cementing Planning
- Underbalanced Drilling (UB) and Managed Pressure Drilling (MPD) Operations

PROGRAM OBJECTIVES

By the end of the program, participants should be able to

- Design a successful, Economic, liable and safe Cementing job leading to good Zonal Isolation.

PROGRAM CONTENT

Day 1:

- Fundamentals of Cement Manufacturing
- Cementing Materials
- Cementing Equipment
- Cement Calculation and Laboratory Testing

Day 2:

- Performing the Job
- Multi-Stage Cementing
- Theory of Fluid Migration after Cementing
- Diagnosing the Potential for Fluid Migration

Day 3:

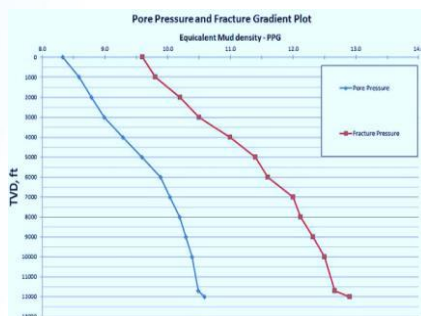
- Controlling Migration Phenomena
- Cement Sheath Evaluation
- Acoustic & Non-Acoustic Techniques
- Interpretation Guidelines

Day 4:

- Remedial Cementing
- Squeeze Cementing
- Liner Cementing

Day 5:

- Plug Cementing
- Cementing Problems



CASING DESIGN PRESSURE & GRADIENTS

UETMT-DRG-2-117

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

This program is designed to give an overview to the Casing setting depth, Casing running check list, designing the Cement, cement squeeze, effect of mud removal on the cement quality, how to avoid gas migration in the cement designing.

TARGET AUDIENCE

- Drilling Engineers
- Drillers
- Tool Pushers
- Rig Supervisors

TARGET COMPETENCIES

- Casing Program and Design
- Data Gathering and Interpretation
- Casing Shoe depths and number of Strings
- Hole and Casing sizes
- Mud-weight Design

PROGRAM OBJECTIVES

Participants will be able to perform a good cement job more over better squeeze job. Several problems will be discussed in the class and the participants find out the solutions.

PROGRAM CONTENT

Day 1:

- Selecting Casing & Hole Sizes
- Selecting Casing Setting Depths
- Factors of Safety Consideration

Day 2:

- Casing Stress Calculations
- Selecting Appropriate Connection
- API Specifications

Day 3:

- Cement Additives
- Cement Laboratory Tests
- Monitoring Cement Progress

Day 4:

- Selecting Appropriate Slurry
- Cement Placement Progress
- Cement Calculations

Day 5:

- Mud Removal
- Preventing Gas Migration
- Well Head Equipment Summary



MANAGED PRESSURE DRILLING- APPLICATION, DESIGN & EXECUTION

UETMT-DRG-2-118

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program requires a good understanding of Basic Well Construction and Conventional Well-Control Operations.

TARGET AUDIENCE

- Exploitation/Exploration Managers and Engineers
- Drilling/Completion/ Production Engineers
- Supervisors
- Service Company Personnel who will be applying Managed Pressure Drilling (MPD) and Completion Operations.

TARGET COMPETENCIES

- Managed Pressure Drilling (MPD) Operations
- Underbalanced Drilling (UB)

PROGRAM OBJECTIVES

By the end of the program, participant will be able to:

- Conduct an economic value-added screening for potential MPD applications
- Determine the best type of MPD application for any given setting
- Identify potential challenges and risks of selected methods
- Design the required equipment setup and hydraulics program
- Deal with drilling fluid and corrosion aspects of the system
- Draw up detailed procedures for the operation
- Troubleshoot problems that occur in the field

PROGRAM CONTENT

Day 1: Introduction, Definitions and Pretest

- Potential Goals and Benefits versus Perceived and Real Risks, Art versus Science
- Introduction to Primary Competing Methodologies – Good, Bad and Ugly
- Operational Monitoring and Reporting, IADC Tour Sheet

Day 2: Conventional Well Control, Wellbore Pressure Dynamics

MPD Potential Risks and Rewards

- Basic realities of Geology and Reservoir Aspects
- Complex versus Vertical Well Applications, Constraints and Concerns
- Wellbore Stability and Overbalance Constraints
- Production Rate Improvement Potential
- Productivity Enhancement, Formation Damage Realities in MPD
- EWD Capabilities and Limitations
- Capital Constraints and Realistic Expectations
- Operational Constraints, Corrosion, Sour Fluids, Lease and Personnel
- Environmental Constraints
- Altered Operational Practices, HSE Concerns and Regulations
- Economic Screening Tool Introduction and Application

Day 3: MPD System Options

- Air/Gas/Mist Systems
- Foam Systems
- Multiphase Systems
- Non-Compressible Systems, Mud-Cap Drilling
- Non-Conventional Systems
- System Selection Criteria

Day 4: Surface Equipment Set Requirement and Limitations

- Wellheads, BOP's, Control Heads and Diverters
- Choke Manifolds and Back Pressure Control
- Separator Systems
- Liquid Handling and Solids Removal
- Flare Systems and Waste Disposal
- Monitors, HS&E Requirements and Alarms
- Lease Lay-Out and ERP Design

Down-hole Equipment Requirement and Limitations

- Motors, MWD/LWD and Bits
- Floats and Check Valves
- Down-Hole Deployment Valves
- Jet Subs, Slave (Dual Casing) and Parasitic Strings
- Coiled Tubing Applications
- Corrosion Concerns, Monitoring and Control

Day 5: MPD Operations Design

- Defining and Confirming Target Bottom-Hole Pressure
- Maintaining BHP while Drilling
- Controlling BHP during Connections
- Tripping and Completion Installation
- Rules of Hydraulics Design
- Hydraulics Design Criteria

Field Execution and Reporting

- Review and Analysis – Hydraulics Design Exercise
- Pre-spud Meeting, Team Make-up and Roles
- Procedural Programs and Preset Operational Limits
- Monitors, Alarms and Other Observations
- Field Data Collection and Reporting
- Common Operational Pitfalls and Solutions
- Application Champions



HYDRAULIC FRACTURING APPLICATIONS

UETMT-DRG-2-119

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program takes a practical approach to the applications of hydraulic fracturing. Fracturing technology is explained to show its benefits and limitations in all types of sandstone and carbonate reservoirs. Fracture modeling is used as a tool to demonstrate how modeling software can be used effectively in practical applications. All aspects of the planning, designing, and implementation of fracturing treatments are covered. In addition to the technical presentation, the course contains many practical exercises and class problems based on case histories. You will take home a fresh approach to hydraulic fracturing, eager to select viable candidates for more effective fracturing applications.

TARGET AUDIENCE

- Production, Reservoir, and Drilling Engineers, as well as others who need a better understanding of Fracturing Applications

TARGET COMPETENCIES

- Hydraulic Fracturing
- Fluid Displacement Concepts

PROGRAM OBJECTIVES

By the end of the program, participants should be able to

- Design hydraulic fracture treatments for typical field situations
- Apply the concepts of well stimulation by hydraulic fracturing to various types of reservoir conditions to optimize well productivity
- Recognize opportunities for substantial production improvement by application of effective hydraulic fracturing
- Gather pertinent well data and information to plan, design, implement, and evaluate fracturing treatments for all types of reservoirs
- Realize the strengths and limitations of hydraulic fracture theory as it relates to field applications of fracturing
- Become a participant in each fracturing treatment rather than just a technical observer

PROGRAM CONTENT

- Introduction to the Fracturing Process
- Fracture mechanics
- Practical fracture Design
- Fracturing fluid additives and Proppant
- Strengths and limitations of fracturing applications
- Production increase
- Factors involved in field implementation
- Acid fracturing vs. Proppant fracturing
- Frac packs
- Waterfracs
- Fracturing in Horizontal Wells
- QA/QC of fracturing Treatments
- Evaluation of fracturing Treatment Success

SOLIDS CONTROL SYSTEM

UETMT-DRG-2-120

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

Solids Control is a technique used in a drilling rig to separate the solids in the drilling fluids that are crushed by the drill bits and carried out of the well surface. The course will address the solid system contains five stages: the mud tank, shale shaker, vacuum degasser, desander, desilter, and centrifuge.

TARGET AUDIENCE

- Drilling Engineers
- Supervisors
- Managers
- Tool Pushers
- Reservoir Engineers
- Technical Managers
- Service Company Personnel

TARGET COMPETENCIES

- Solids Control
- Mud Tank
- Shale Shaker
- Vacuum Degasser
- Desilter and Centrifuge

PROGRAM OBJECTIVES

By the end of the program, participant will be able to:

- Select and design a Solids Control System that minimizes total Well Costs
- Ensure that Solids Control Equipment operates efficiently

PROGRAM CONTENT

- Definition and functions of Drilling Fluids
- Field Tested Properties and their Control
- Engineering Calculations
- Rheology and Hydraulics
- Clay Chemistry and Applications
- Filtration and Fluid Loss Control additives
- Drilling fluid contamination and Solids Control
- Wellbore instability
- Various drilling fluids and their applications
- Case Studies to identify problems of drilling fluid systems





OIL- BASE MUD TECHNOLOGY

UETMT-DRG-2-121

Program Duration: 5 days

Program Level: Foundation

OFFSHORE RIGS

UETMT-DRG-2-122

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

Increasingly challenging environmental legislation around the world has resulted in the need to treat Oil-Base Mud (OBM) contaminated drill cuttings. Operators are currently using low and medium temperature indirect thermal desorption to remove the oil and water from drill cuttings, providing an opportunity to recycle the recovered oils. This 5-day program covers all aspects of oil base mud technology, emphasizing both theory and practical application, technical concepts and specific drilling fluids selection steps for the key planning processes of drilling fluids and hydraulics. Participants will leave the program with a thorough understanding of the entire oil-base mud technology, testing procedures and specific design steps

TARGET AUDIENCE

- Drilling and Production engineers, Mud Engineers & Drilling Supervisors

TARGET COMPETENCIES

- Mud Logging
- Drilling Fluids
- Drilling Fluids Planning and Circulating Systems

PROGRAM OBJECTIVES

By the end of this program the participant will be able to:

- Understand the Functions of Drilling Fluids
- Select Drilling Fluids
- Understand Drilling Fluids Testing Procedures
- Be Familiar with Physical and Chemical Properties of Oil-Base Drilling Fluids
- Understand the Contaminants of Oil-Base Drilling Fluids
- Use Solids Control Equipment
- Understand Rig Hydraulics
- Monitor performance
- Deal with bore-Hole Problems Related to Drilling Fluids, Pressure Prediction and Control
- Be Familiar with Drilling Fluids for Work-Over and Horizontal Drilling
- Briefly Describe the Different Types of Indirect Thermal Desorption Units commonly used in the Oilfield for Drill Cuttings treatment
- Determine the Quality of Fluids Recovered from a Low Temperature Indirect Thermal Desorption Process
- Understand and Analyze Engineering Data

PROGRAM CONTENT

- Introduction to Drilling Fluids
- Functions of Drilling Fluids
- Drilling Fluids Selection Criteria: What fluid combinations provide the best results in specific environments?
- Oil Based Mud
- Composition and Properties of Oil Based Mud
- Application of Oil Based Fluids in Drilling through Shales
- Completing Wells with particular Emphasis on Horizontal Wells
- In Which Situation Oil-Base Mud is to be used?
- Selection and Implementation of Final Fluid Choice in Complex Well Formation
- Drilling Fluids Testing Procedures
- Physical & Chemical Properties of Oil-Base Drilling Fluids
- Contaminants of Oil-Base Drilling Fluids
- Solids Control Equipment
- Rig Hydraulics
- Performance Monitoring
- Work-Over Fluids
- Bore-Hole Problems Related to Drilling Fluids
- Pressure Prediction and Control
- Drilling Fluids for Horizontal Drilling
- Different types of Indirect Thermal Desorption Units commonly used in the Oilfield for Drill Cuttings Treatment: A brief description
- Quality of Fluids recovered from a low temperature Indirect Thermal Desorption Process: A detailed Chemical and Physical analysis
- Engineering Data:
- How feasible is it to use the same fluid for all your well construction operations?
- How can this success be repeated for other wells?

PROGRAM OVERVIEW

This program introduces participants to Offshore Drilling Equipment, Logistics, and Safety & Environmental considerations on Offshore Rigs.

TARGET AUDIENCE

- Drilling Engineers, Supervisors, Logistics and service company personnel that will be operating offshore.

TARGET COMPETENCIES

- Offshore Rigs Types
- Fundamentals of Drilling

PROGRAM OBJECTIVES

By the end of the program, participant will be able to:

- Understand the offshore drilling principals
- Select offshore Drilling Rig
- Understand Freestanding wells vs. Jacket wells
- Be Familiar with Simultaneous Operations
- Identify Offshore Drilling Safety risks & Control

PROGRAM CONTENT

- Water depth vs. Rig types
- Overview of jack-up and floating rig operations
- Jack-up rig design
- Freestanding wells vs. Jacket wells
- Overview of offshore jackets
- Tripods/satellites vs. production platforms
- Conductor Operations
- Mud-line suspension systems
- Blow-out Preventers
- Logistics and Shore base operations
- Simultaneous Operations
- Offshore Safety
- Emergency Procedures
- Environment - Pollution prevention and Spill Control





ELECTRICAL SUBMERSIBLE PUMPS

UETMT-DRG-2-123

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

ESP's are one of the higher volume methods of lift. ESPs have advantages over some other high volume methods since they can create a higher drawdown on the formation and achieve more production, if problems such as gas interference and sand production can be solved.

This program will allow the user to become familiar with the ESP system and when it should be used. All components will be described in detail. Design and analysis problems will be done using advanced computer programs. Some films will be show mostly illustrating installation, operation and removal of failed equipment, new products and best practices. Problems will be solved by the class members each day and will be discussed with the class. Discussion is encouraged concerning experiences of successes and failures. Problems addressing solids, gas handling and viscosity are addressed. Best practices are stressed throughout so a long lasting system can be developed for maximum profit. SCADA controls and VSD's are discussed. The attendee will learn the function of the various components, and the concerns about installation, operation, and removal of failed equipment. The student will be able to evaluate the design a system for current and future conditions, analyze an installed system, and many other operational concerns of the ESP system. New developments are added to the course as they become available to the industry.

Although the course contains use of advanced computer programs for design and analysis, much of the material is devoted to best practices, which is usable by both engineers and technicians.

TARGET AUDIENCE

Engineers and field technicians who are responsible for the selection, operation and maintenance of ESP systems

TARGET COMPETENCIES

- Electrical Submersible Pumps
- ESP System and Stages

PROGRAM OBJECTIVES

By the end of the program, participants should learn how to

- Identify components of the ESP system
- Design and analyze a system using up to date computer programs
- Best practices for longer system life
- Improve power efficiency of the system
- Combat gas, solids, corrosion and viscosity in the produced fluids
- Compare to other artificial lift methods

PROGRAM CONTENT

- Introduction to artificial lift
- Introduction to electrical submersible pumping
- Introduction for reservoir and production considerations
- Description of all components of the electrical submersible system starting at the surface to the pump; transformers; controllers/VSD; wellhead; tubing cable; cable guards; motor lead cable; pump; intake/gas separator; equalizer/protector; motor; instrumentation
- Installation considerations and cautions
- Design of an ESP system to fit current and future well conditions
- Operation of a given design
- Analysis of an ESP system using diagnostics from installed instrumentation and using diagnostic computer programs
- Removal of failed equipment
- Controls for ESP systems including variable speed drives
- ESP instrumentation available in the industry
- Failure analysis
- Data keeping
- Maintenance and Monitoring

OPERATION & MAINTENANCE OF ROTATING EQUIPMENT

UETMT-DRG-2-124

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program will address Operation Procedure and practice of Rotating Equipment and also will focus on Maintenance Plan and methodology for different rotating equipment.

TARGET AUDIENCE

- Field Junior Engineers, Senior & Junior Maintenance Technicians

TARGET COMPETENCIES

- Rotating Equipment
- Identification of Failure Modes
- Monitoring Methods of Failure Symptom

PROGRAM OBJECTIVES

To provide the Operation & Maintenance Engineers & Technicians with the means to properly operate and support the Rotating Equipment in a way based on the good acquaintance with the modern technologies applied in this field. Troubleshooting & forecasting break downs are inclusive.

PROGRAM CONTENT

Technology and Operation of Rotating Machines

General Aspects of Machine Technology

- Main Parts of the Machines : Casing, Rotor, Bearing, Coupling
- Auxiliaries : Flushing, Heating and Cooling, Lubrication Systems
- Maintenance: Assembly and Dismounting Procedures, Inspection, Clearance, Adjustment & Alignment

Operation and Performance

Process Aspect

- Running Parameters, Head, Flow, RPM, Efficiency
- Characteristic Curves. Regulation. Start-up, Routine Survey. Effect of internal Wear

Mechanical Aspect

- Stress in Machines. Influence on lifetime, on Damage. Failure Prevention; Monitoring, Repair Quality

Common Troubles

- Internal Leakages. Unbalancing. Wear and Ruptures, Vibration

Technology and Maintenance of the Machine Components

Lubrication

- Purpose, Lube Roles, Different Types of Oil and Grease. Practical Aspect

Bearings

- Anti-friction Bearings: Types, Lifetime, Mounting, Applications, related Problems
- Plain and Pad Bearings, Thrust Bearings; Operation, Maintenance, Incidents

Coupling and Alignment

- Different Types of Couplings, Related Problems.
- Different Methods of Alignment using Comparators, Tolerances, Practical Aspects.

Sealing Devices for Pumps and Compressors.

- Mechanical Pump Seals, Types, Operation, Related Problems. Installation, Geometrical Checks.
- Other Seals for Positive Displacement Pumps and Reciprocating Compressors

Rotors and Shafts

- Balancing : Eccentricity, Tolerances, Assembling on Shaft : Effect on Balancing
- Geometrical Shaft Controls

Forecasting Breakdowns

Study of Ruptures and Wear and Other Failures

- Typical Damage to Machines: Problems and Causes of Failures, Influences of Metallurgy and Surface Treatments
- Fatigue, Wear and Tear
- Rupture Face Analysis
- Use of Vibration Surveys in Forecasting



WIRELINING & FORMATION EVALUATION

UETMT-DRG-2-125

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program is designed for Engineers who are involved in the formation evaluation process, in which coring, mud logging productivity testing and wire line logging are the main components - well logs provide a comprehensive snapshot of all the formation penetrated by a borehole. The course stresses the theory, measurements, applications and limitation of the available logging tools. Interpretation methods for rock type, lithology, porosity and hydrocarbon saturation are reviewed

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Senior Engineers
- Team Leaders in Drilling Engineering/Operations

TARGET COMPETENCIES

- Wireline Operations
- Coring
- Mud Logging
- Wireline Logging

PROGRAM OBJECTIVES

The program is designed for engineers who are involved in the formation evaluation process, in which coring, mud logging productivity testing and wire line logging are the main components - well logs provide a comprehensive snapshot of all the formation penetrated by a borehole. The course stresses the theory, measurements, applications and limitation of the available logging tools. Interpretation methods for rock type, lithology, porosity and hydrocarbon saturation are reviewed.

PROGRAM CONTENT

- Introduction
- Definition of formation evaluation
- Scope & objective of integrated formation evaluation,
- using cores mud logs, wire line logs and productivity tests
- Basic Reservoir Petrophysics
- Wireline log data
- Tools and techniques needed to manage the formation evaluation process
- Open-hole log analysis
- Cased-hole analysis
- Well testing concepts
- Basic reservoir models
- Dimensionless variables
- The skin effect
- Well storage
- Infinite acting radial flow semi log analysis
- Semi Log- log type curves
- Reservoir boundary response
- Dual porosity wells
- Fractured wells
- Multirate test build-up
- Computer- aided analysis
- Graphical presentations
- Derivative plot
- Diagnostic plot evaluation
- Gas well tests:
 - Real gas pseudo pressure & pseudo time
 - Calculating pseudo pressures
 - Rate dependent skin effect
- Multiphase well tests
- Perrine's approach
- Pressure squared approach
- Designing well tests:
 - Variable dependency
 - Test duration
 - Flow rate considerations
 - Advanced topics
 - Horizontal wells
 - Multi-layered well analysis
- Calculating properties
 - Oil properties
 - Gas properties
 - Water properties
 - Rock properties
 - Total properties
- Worked & field examples

SAFETY PRACTICES IN WIRELINING

UETMT-DRG-2-126

Program Duration: 5 days

Program Level: Foundation

PROGRAM OVERVIEW

The program is designed to address all HSE Issues associated with Wirelines operations starting from call for Wireline operation till end of this operations including but not limited to W/L Tools & Equipment, Gas Wells and H2S and BOP.

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Team Leaders in Drilling Engineering/Operations

TARGET COMPETENCIES

- Operation in Heavy Fluids and Drags
- Wireline Equipment Routine Checks
- Safe Working Procedures and Practices

PROGRAM OBJECTIVES

By the end of the program, participants will be able to:

- Improve understanding and awareness of equipment operation and correct procedures.
- Improve efficiency and to reduce downtime from insufficient maintenance and / or preparation of equipment.
- Increase individual's knowledge and confidence.
- Improve on / site safety.
- Aid personnel involved in purchase and inventory control of wire line tools and equipment.

PROGRAM CONTENT

General Safety Regulations:

- Personnel Safety
- Safe Procedures
- Arrival to Camp Location
- Information Necessary from Supervisor
- Driving in Desert

Safe Working Procedures and Practices:

- House Keeping
- Hand Tools & PPE

Operation in Heavy Fluids & Drags:

- Wire line Operations in Mud or Heavy Fluid
- Gas Wells and H2S
- Cranes and Lifting Tackle
- Ladders, Scaffolding and Staging

Purchase and Inventory Control of W/L Tools and Equipment

- How to select the Wire line size and how to keep the Tools

Wireline Equipment Routine Checks:

- Wire line Surface Equipment
- Stuffing Box
- Blow Out Preventer B.O.P
- Location Wire line Operational Safety
- Care & Maintenance of Wire line





SKILL LEVEL



3
LEVEL

PROGRAM LEVEL	PROGRAM CODE	PROGRAM TITLE	PROGRAM DURATION
SKILL LEVEL	UETMT-DRG-3-101	Drilling Principles & Practices	5 days
	UETMT-DRG-3-102	Practical Drilling Skills	5 days
	UETMT-DRG-3-103	Drilling Principles & Practices	5 days
	UETMT-DRG-3-104	Stuck Pipe and Fishing Operations	5 days
	UETMT-DRG-3-105	Drilling Project & Risk Management	5 days
	UETMT-DRG-3-106	Drilling Performance	5 days
	UETMT-DRG-3-107	Underbalanced Drilling Technology	5 days
	UETMT-DRG-3-108	Drilling Optimization & Well Planning	5 days
	UETMT-DRG-3-109	Directional & Horizontal Wells	5 days
	UETMT-DRG-3-110	Directional, Horizontal & Multilateral Drilling	5 days
	UETMT-DRG-3-111	Drill String Design & Failure Prevention	3 days
	UETMT-DRG-3-112	Casing & Well Design	5 days
	UETMT-DRG-3-113	Casing & Cementing	5 days
	UETMT-DRG-3-114	Cementing Practices: Planning, Execution and Evaluation Control	3 days
	UETMT-DRG-3-115	Cementing Technology	5 days
	UETMT-DRG-3-116	Deepwater Well Design and Planning	5 days
	UETMT-DRG-3-117	Deepwater Drilling Operations and Well Control	5 days
	UETMT-DRG-3-118	Deepwater Drilling Challenges and Techniques	5 days





PRACTICAL DRILLING SKILLS

UETMT-DRG-3-101

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

- This program puts all the contents together for integrated system view of Well Planning and Construction.
- The program will cover the Practical Drilling Skills and the application of the technologies, Mud Cleaning and Rheology, Well Control Procedures, Controlling Drilling Solids, Hydraulic Optimization, and Optimization Drilling Parameters.

TARGET AUDIENCE

- Drilling Engineers
- Supervisors
- Tool Pushers
- Drillers and Technical Managers responsible for Improving Drilling Performance at the Rig Site

TARGET COMPETENCIES

- Mud Logging
- Pore Pressure
- Nozzle Sizes and Flow Rate
- Drilling Fluid
- Wellbore Instability

PROGRAM OBJECTIVES

- Participants will learn the principles and concepts for the cause's of the problems as well as the techniques employed to avoid such problems and predicting, detecting.
- Operation guidelines are given to optimize the efficiency of a fishing operation several case studies will be presented and discussing the problems which had been faced.

PROGRAM CONTENT

- Pore Pressure determination
- Well Control procedures: mud logger data, killing well, barite plugs
- Hole Cleaning and rheology
- Drilling Fluid: Polymers, biocide, water-base, oil-base
- Controlling Drilling solids to reduce drilling problems and waste volumes
- Pressure Integrity Tests
- Hydraulic Optimization (onsite "ocho" technique)
- Optimized weight-on-bit/rotary speed (onsite)
- Hole Problems: ballooning, hole stability, pipe sticking, lost returns
- Operation Guidelines
- Operation Problems

Drilling Trends and new Technology

DRILLING PRACTICES

UETMT-DRG-3-102

Program Duration: 10 days

Program Level: Skill

PROGRAM OVERVIEW

This two-week program is designed for Engineers and Field Personnel involved in Planning and Implementation of Drilling Programs. The program will cover-all aspects of Drilling Technology, emphasizing both theory and Practical Application. Drilling is a Complex Operation requiring the marriage of different technologies and disciplines. Today's Drilling Personnel must have a working knowledge of all these disciplines in order to effectively drill a well. The program provides necessary information to Drill a Well whether it is a shallow well or, a deep high pressure well. The participants will be provided with the theory behind most programs along with Practical implementation.

TARGET AUDIENCE

- Drilling Supervisors
- Drilling Engineers
- Cement and Mud Engineers
- Tool Pushers
- Managers and Technical Support Personnel

TARGET COMPETENCIES

- Rotary Drilling
- Drill String Design (DSD)
- Drilling Bits Program
- Mud Logging

PROGRAM OBJECTIVES

- Review Drilling Data and Plan the Well from Spud to running Production Casing and Completion Strings
- Incorporate the Completion Plans into the Drilling Plan
- Drill a Well Cost Effectively and maximize Penetration Rate
- Evaluate Stuck Pipe Problem and avoid potential Problems
- Evaluate and Maintain Drilling Fluids
- Optimize Hole Cleaning
- Design Casing, Drill String and BOP/Wellheads
- Evaluate and implement Cementing Programs
- Familiarizations with Cement Squeeze Techniques
- Design and implement Bit and Hydraulics Programs
- Incorporate Directional Drilling and Deviation Control
- Recognize and Evaluate Well Control Problems

PROGRAM CONTENT

- Planning including requirements for the Completion and Testing
- AFE Preparation
- HSE at the Rig Site
- Cost Control
- Evaluating Alternative Drilling Methods and Maximizing Penetration Rate
- Hole Cleaning
- Sloughing Shale
- Lost Circulation
- Stuck Pipe and Fishing Operations
- Drilling Fluids
- Lifting Capacity of Drilling Fluids
- Pressure Losses in the Circulating System and ECD
- Maximizing Hydraulics in the Planning Phase and at the Rig
- Bit Selection and Application
- Casing and Drill String Design
- Selection of Casing Seats
- BOP Equipment
- Cement, Cement additives and Displacement Mechanics
- Deviation Control
- Directional Drilling and Horizontal Drilling
- Pressure Control – Routine and Special Problems
- Project Post Analysis



DRILLING PRINCIPLES & PRACTICES

UETMT-DRG-3-103

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

- Provide an in-depth appreciation of Drilling Equipment and Operations
- Detailed Well Planning and Optimization at the Rig Site are essential in the present Business Environment. This program puts all the pieces together for an integrated Systems view of Well Planning and Construction.

TARGET AUDIENCE

- Drilling Supervisors
- Drilling Engineers
- Tool Pushers
- Senior Drillers and Drilling Superintendents

TARGET COMPETENCIES

- Standard Drilling Instructions (SDI), Drilling Manual (DM) and Guidelines
- Rotary Drilling
- Drill String Design (DSD)
- Drilling Bits Program
- Mud Logging

PROGRAM OBJECTIVES

Technical concepts are reviewed and specific Design steps and tools are used for the key Planning Processes of Drill String Design, Drilling Fluid, Hydraulics, Bit Selection / Running Conditions and Cementing Program. Case Studies are analyzed and worked as Team Projects, and participants are encouraged to Bring Case Studies to Class. Participants leave the program with through Understanding of the entire Well Planning, Implementation and Analysis Process, and specific Design Processes and Checklists.

PROGRAM CONTENT

- Preparation for Drilling Operations
- Drilling Operations
- Drilling Calculations
- Drilling Hydraulics
- Drill String Design
- Bit Separation and Evaluation
- Well Evaluation (Coring, Logging and Testing)
- Abnormal Pressure Prediction and Detection
- Cementing



- Directional Well Planning
- Wellheads BOP's and Operating Systems
- Stuck Pipe and Fishing
- Special Well Control Situations
- Drilling Optimization
- Drilling Problems

STUCK PIPE AND FISHING OPERATIONS

UETMT-DRG-3-104

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

Stuck Pipe is a long-standing problem in the Drilling Industry. It is estimated \$200 - \$500 million is sent annually as a result of Stuck Pipe. This amount could be drastically reduced by preventative action and rapid response to keep minor sticking from developing into severe sticking.

TARGET AUDIENCE

- Drilling Engineers
- Tool Pushers
- Drillers

TARGET COMPETENCIES

- Stuck Pipe Environment
- Stuck Pipe – Causes, Occurrence, Prevention
- Stuck Pipe Identification and Prevention
- Fishing Operations
- Plug Back and Side Tracking

PROGRAM OBJECTIVES

- Participants will learn causes of the Stuck Pipe and Fishing Problems as well as the techniques employed to avoid such problems.
- Predicting, detecting and the preventive action are most important to avoid such problem, more over the good Drilling Practice to drill safely and fast, reduce the rig cost by eliminating the drilling before its occur.
- This program was designed to let the participants take the proper decision in the proper time, also to solve the problem in logical procedures from the decision tree.

PROGRAM CONTENT

Stuck Pipe Prevention

- Stuck pipe is not inevitable
- Bottom hole assemblies
- Drilling
- Tripping
- Casing & Cementing

Oil Field Surface Operations

- Unconsolidated Formations
- Reactive Formations
- Fractured or faulted Formations
- Geo-Pressured Formations

Mechanical Causes of Stuck Pipe

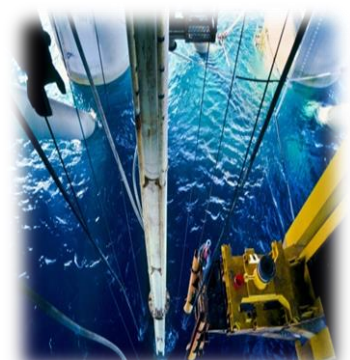
- Under gauge hole
- Mobile Formations
- Well bore geometry
- Poor hole cleaning
- Key seating
- Collapsed casing
- Junk
- Cement related

Differential Sticking

- Avoidance

Diagnosis of Stuck Pipe

- Freeing Stuck Pipe





DRILLING PROJECT & RISK MANAGEMENT

UETMT-DRG-3-105

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

The program covers the application of sound project and Risk Management Principles in the Management of Drilling Operations. It uses a Holistic, Multi-Disciplinary and integrated Management Approach that involves Operations, Personnel, Administration, Finance, and Legal Functions.

TARGET AUDIENCE

- Drilling Managers
- General Managers
- Asset Managers
- Project Managers
- Finance Managers
- Project Controllers with Direct responsibility for, or involvement in, the Management of Resources with on-going or Planned Drilling Operations.
- It is also suitable for Senior Drilling Engineers, Drilling Superintendents and Drilling Supervisors.

TARGET COMPETENCIES

- Drilling Risk
- Risk Management
- Supply Chain Management and Reporting Systems

PROGRAM OBJECTIVES

The main goal of the program is to highlight the critical Project and Risk Management issues that are required to run Drilling Projects in an efficient, Safe, Environmentally-friendly and Cost-effective Manner.

At the end of the program, participants will be familiar with the key issues and principles, How to apply them in practice and how to integrate them in the asset or Project Team to optimize the Management of the Drilling Project and manage the identified risks so as to increase value.

PROGRAM CONTENT

- Overview of Drilling Project Management
- Cost vs. Value
- Contract Models
- Project Planning and Design
- Planning Software
- Drilling Programming
- Tendering and Contracting Strategy
- Project Finance and Administration
- Supply Chain Management
- Reporting Systems
- Communications and Knowledge Management
- Project Close-out
- Management Systems
- HSEQ Management Systems
- Introduction to Risk management
- Risk Management Process
- Levels of Risk Management
- Operational Risk Assessments and Analysis

PERFORATING

UETMT-DRG-3-106

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

The program is a comprehensive overview of Perforating Technologies and applications related to different types of Formations and Well Completions. Discussing the best practices for Perforating, the program delivers the state-of-art in selection of charges, deployment of guns and techniques to perforate, decreasing damage and optimizing production.

TARGET AUDIENCE

- Drilling Supervisors
- Drilling Engineers
- Tool Pushers
- Managers and Technical Support Personnel

TARGET COMPETENCIES

- Casing
- Coiled Tubing
- Perforating

PROGRAM OBJECTIVES

- Discuss conveyance methods and application of oriented Perforations.
- Learn methods to diminish perforating damage and cleaning perforations and the geo-mechanical concepts applied in perforating.
- Discuss the contents and scope of API Standard RP19B and will be initiated in the techniques of perforating carbonates, perforating for hydraulic fracturing and perforating injector wells.
- Learn the best practices to perforate in weak sands, for Sand Control completions and for sand management techniques, will discuss production optimization through perforating methods, and will be familiarized with the selection and utilization of propellants.

PROGRAM CONTENT

Day 1

- Introduction to Perforations
- Explosives History and Shaped Charge Technology
- Shaped Charge Design
- Hardware

Day 2

- Tubing Conveyed Perforations (TCP)
- TCP firing heads
- Wireline perforations
- Oriented perforations

Day 3

- Completions without killing
- Cleanperf
- Geomechanics for Perforating

Day 4

- API Standard RP19B (2nd Edition)
- Perforating carbonates
- Fracturing process and Perforating Methodology
- High Energy Fracturing Applications
- Perforating injectors

Day 5

- Perforating weak sands (for sand control)
- Perforating weak sands (for sanding prevention)
- Perforating for Production Optimization
- Propellants



UNDERBALANCED DRILLING TECHNOLOGY

UETMT-DRG-3-107

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

The program is designed to familiarize the attendees with the concepts of Air, Foam, Mist and aerated Drilling Fluids and the possible Hazards associated with Under-balanced Drilling

TARGET AUDIENCE

Drilling Engineering, Drilling Technicians, Petroleum Engineers

TARGET COMPETENCIES

- Underbalanced Drilling (UB) and Managed Pressure Drilling (MPD) Operations
- Rotating Head
- Hydrostatic Pressure
- Coiled Tubing Drilling

PROGRAM OBJECTIVES

The program allows the participants to obtain up-to-date information on under-balanced Drilling Technology, tools & Surface Equipment and enables them to implement new technologies into their Operations to achieve significant cost savings.

PROGRAM CONTENT

Day 1:

- Introduction to under-balanced drilling
- Historical perspectives
- Under-balanced drilling techniques
- Barriers to under-balanced drilling

Day 2:

- Air drilling
- Air Drilling Problems
- Logging in dry holes
- Air requirements
- Dust drilling
- Mud versus air operations

Day 3:

- Mist drilling
- Aerated drilling fluids: Applications & Procedures
- Lightweight fluid chemistry and rheology
- Gasification techniques
- Surface equipment
- BOP stack
- Rotating head choke manifold
- Oil separation pits & Drilling fluid pit
- Operating Procedures

Day 4:

- New advances in under-balanced drilling
- Formation fracturing with foam
- Novel Light weight fluids
- Erosion & corrosion control
- Under-balanced examples & calculations
- Foam in work-over operations
- Other Applications of foam

Day 5:

- Stable foam speeds well clean-out
- Foam cement
- Stimulation using foam
- Foam fracturing.
- Compressor hookup and design for air drilling
- Environmental aspects
- Well Productivity by using under-balanced drilling

DRILLING OPTIMIZATION & WELL PLANNING

UETMT-DRG-3-108

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

Detailed Well Planning and Optimization at the Rig site are essential in the present business environment.

Technical concepts are reviewed and specific design steps and tools are used for the key planning processes of casing design, drilling fluid, hydraulics, bit selection / running conditions and cementing program.

TARGET AUDIENCE

- Individuals involved in Well Planning and Operations who want to strengthen their Well Planning Skills Like:
- Experienced Drilling Engineers
- Superintendents
- Mud Engineers
- Geo-Scientists

TARGET COMPETENCIES

- Data Collected in Real-Time
- Monitor Drilling Parameters
- Reduce Drilling Risk
- Well Drilling and Monitoring
- Well Planning and Authorization For Expenditure (AFE)

PROGRAM OBJECTIVES

Participants will gain a thorough understanding of the entire Well Planning, implementation and Analysis Process, and specific Design Processes and checklists.

Case Studies are analyzed and worked as team projects, and participants are encouraged to bring case studies to class.

PROGRAM CONTENT

Day 1

- Elements of Successful Planning / Optimization
- Tools and Techniques to manage the Planning

Day 2

- Offset and Data Analysis
- Hole size and Casing Program

Day 3

- Drilling Fluid and Solids Control
- Bit Hydraulics

Day 4

- Cementing and Recommendation for Successful Cement Job

Day 5

- Performance Monitoring
- Integration of New Technology



DIRECTIONAL & HORIZONTAL WELLS

UETMT-DRG-3-109

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

This program builds a firm foundation in the principles and practices of Directional Wells, Calculations, and Planning for Directional and Horizontal Wells.

Specific Problems associated with Directional/Horizontal Wells. Participants will receive instruction on Planning and Evaluating Horizontal Wells based on the objectives of the Horizontal Well.

TARGET AUDIENCE

The program is recommended for Drilling Engineers who wish to enhance their experience in the areas of Directional & Horizontal Drilling

TARGET COMPETENCIES

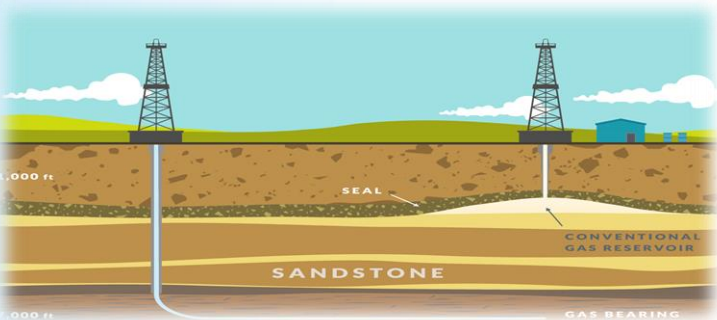
- Directional & Horizontal Wells
- Survey Calculations
- Survey Instrument
- Multi-Lateral Completion
- Hydraulic Fracturing
- Enhanced Oil Recovery
- Field Development

PROGRAM OBJECTIVES

To refresh knowledge of Hole deviation principles & to create knowledge of recent Technologies in the field of Horizontal Drilling.

PROGRAM CONTENT

- Directional Drilling Systems
- Directional Drilling Applications
- Surveying Methods
- Calculation Methods
- Horizontal Wells Applications
- Candidates for Horizontal Drilling
- Screening Criteria
- Exploration in Horizontal Wells
- Rock Mechanics in Horizontal Sections
- Horizontal Drilling Systems
- Navigation of Horizontal Wells
- Logging in Horizontal Wells
- Stimulation in Horizontal Wells
- Drilling Fluids Requirements For Horizontal Drilling
- Completion of Horizontal Wells



DIRECTIONAL, HORIZONTAL & MULTILATERAL DRILLING

UETMT-DRG-3-110

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

This program builds a firm background in the principles and practices of Directional Drilling, Calculations, and Planning for Directional and Horizontal Wells. Specific Problems associated with Directional/Horizontal Drilling such as Torque, Drag, Hole Cleaning, Logging and Drill String Component Design are included. Participants will receive instruction on Planning and Evaluating Horizontal Wells based on the objectives of the Horizontal Well. The basic applications and Techniques for Multi-Lateral Wells are covered in the program. Additionally, the participants will become familiar with the Tools and Techniques used in Directional Drilling such as Survey Instruments, bottom hole Assemblies, Motors, Steerable Motors and Steerable Rotary Systems. Participants will be able to predict Wellbore Path based on historical data and determine the requirements to hit the target.

TARGET AUDIENCE

- Drilling and Operations Engineers
- Field Supervisors
- Tool Pushers
- Managers and Technical Support Personnel

TARGET COMPETENCIES

- Directional, Horizontal and Multilateral Drilling
- Survey Calculations
- Survey Instrument
- Multi-Lateral Completion
- Hydraulic Fracturing
- Enhanced Oil Recovery
- Field Development

PROGRAM OBJECTIVES

- Make Survey Calculations
- Interpret TVD, Polar and rectangular coordinates and Vertical Section
- Interpret Dogleg severity and the Problems Associated with Dogleg Severity
- Plan a two-dimensional Directional Well
- Plan Horizontal Wells based on the objectives of the Well
- Determine the best Multi-lateral Completion for an application
- Determine declination and non-magnetic Drilling collar selection
- Apply the best survey instrument for the job
- Directionally Drill with Rotary
- BHA's, Jetting, whip stocks, motor, steerable motors, and rotary steerable systems
- Drill Horizontally Under balanced
- Interpret torque and drag and determine what factors will affect the torque and drag
- Determine Cementing requirements for Directional Wells

PROGRAM CONTENT

- Applications for Directional Drilling
- Directional Profiles
- Extended reach Wells
- Survey Calculations and Accuracy
- Dogleg Severity Calculations and Problems Associated with Doglegs
- Planning Directional and Horizontal Wells
- Horizontal Drilling Methods and Applications
- Logging High Angle Wells
- Hole Cleaning
- Multi-Laterals
- Types of Survey Instruments
- Tools used to Deflect a Wellbore
- Torque and Drag Calculations
- Cementing



DRILL STRING DESIGN & FAILURE PREVENTION

UETMT-DRG-3-111

Program Duration: 3 days

Program Level: Skill

CASING & WELL DESIGN

UETMT-DRG-3-112

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

Three-days program covering new pipe grades, standardized HWDP dimensions, weights and properties, standardized thick-walled drill pipe dimensions, weights and properties, using design “groups”, integrating design needs with other drilling objectives, setting design constraints and design factors, performing an overload design, performing a fatigue design, comparative design for fatigue prevention, maximum recommended slip cut severity, using NC56 connections in 8-inch BHA’s, proper stress relief dimensions, proper jar placement, monitoring and mitigating corrosion and BHA vibration, predicting and managing buckling.

TARGET AUDIENCE

- Drilling Engineers
- Drilling Foremen
- Tool pushers
- Drillers
- Liaison men

TARGET COMPETENCIES

- Drill String Design (DSD)
- Drill Stem Tubular Products
- Drill Stem Inspection

PROGRAM OBJECTIVES

Upon completion of the program, participants will be able to:

- Know the practical, integrated approach for managing the integrity of Drill String Structure.
- Recognize new approaches to Failure Prevention
- Optimize the Trajectory
- Mitigate and limit Casing Wear
- Prevent slip crushing in heavy landing String Operation

PROGRAM CONTENT

Day 1: Manufacture of Drill Stem Tubular Products

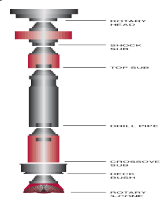
- Metallurgical properties
- Manufacturing constraints
- Mechanical testing
- Manufacturing levels – Standard and Critical
- New pipe grades (Z and V)
- Standardized HWDP dimensions, weights and properties
- Standardized thick-walled drill pipe dimensions, weights and properties
- Relationships to other industry standards, private and public
- How to order drill stem components

Day 2: Drill Stem Design and Operation

- Integrating design needs with other drilling objectives
- Setting design constraints and design factors
- Using Design „Groups“
- Performing an overload design
- Performing a fatigue design

Day 3: Drill Stem Inspection

- The tie between design and inspection
- Basis of acceptance criteria (Premium, Class II, Reduced TSR)
- “Fitness for Purpose“
- Inspection Methods & their limitations
- The value of following written procedures
- How to set an inspection program
- Rig floor trip inspection for drill stem wear
- How to estimate accumulated fatigue damage



PROGRAM OVERVIEW

The first design task in preparing the well plan is selecting the depth to which the casing will be run and commented in this program.

PROGRAM OBJECTIVES

Drilling Engineer will learn how he can consider geological Conditions as formation pressures and fracture gradients for casing setting depth selection.

Also, in this program will discuss the Procedures, Formulas, and rule of thumb for Developing a detailed Casing Program.

TARGET AUDIENCE

- Drilling Engineer
- Drilling Supervisors
- Senior Engineers
- Team Leaders in Drilling Engineers / Operations

TARGET COMPETENCIES

- Casing Program and Design
- Data Gathering and Interpretation
- Hole And Casing Sizes
- Mud-Weight Design
- Directional Design

PROGRAM CONTENT

- Types of Casing and Tubing
- Drive Conductor
- Surface casing
- Intermediate casing
- Liners
- Setting Depth Design Procedures
- Setting Depth for Intermediate & Deeper Strings
- Surface Casing Depth Selection
- Casing weights and Grades Tapered Seal Threads
- Metal to Metal Seal Threads
- Resilient Seals
- Loading Considerations
- Collapse
- Burst
- Tension
- Compression
- Collapse
- Burst Design
- Tension Design
- Design Consideration
- Conductor Casing
- Surface casing
- Protective Casing
- Production Tubing
- Production String
- Production Liner Clearance
- Special Casing Design Considerations
- Shock Loading
- Changing Internal pressure
- Changing External pressure
- Thermal Effect
- Casing Landing
- Example Design
- Environmental Consideration
- Corrosion H2S
- Salt Mechanical Loading
- Hole Deviation
- Special loading Conditions
- Six Landing methods for Casing



CASING & CEMENTING

UETMT-DRG-3-113

Program Duration: 3 days

Program Level: Skill

PROGRAM OVERVIEW

A step-by-step overview of Casing and Cementing, the program begins with a brief overview of Casing and Well Planning, then concentrates on Cement materials and slurry design, and finally reviews the theoretical and practical means to both perform the job and evaluate it afterwards. Participants will be able to apply proven techniques to their jobs for immediate benefit.

TARGET AUDIENCE

- Personnel responsible for planning, overseeing, and conducting casing and cementing operations
- Operator and service personnel

TARGET COMPETENCIES

- Casing Program and Design
- Cementing Planning
- Data Gathering and Interpretation

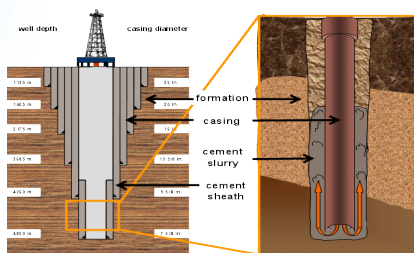
PROGRAM OBJECTIVES

By the end of the program, participant will be able to:

- Select Casing sizes and setting depths to achieve Well Objectives
- Determine Casing Loads for Design purposes
- Design casing properties to meet burst, collapse, and tensile strength requirements
- Conduct casing running operations safely and successfully
- Specify cement slurry properties and volumes to meet well objectives
- Determine best procedures for attaining successful primary cementing
- Conduct stage jobs, squeeze jobs and set cement plugs

PROGRAM CONTENT

- Selecting Casing & hole sizes
- Setting depths
- Casing Loads
- Selecting Casing & Connections
- Casing Stress Calculations
- Cement and Cement additives
- Selecting appropriate slurries
- Mud removal & Cement placement
- Stage cementing, squeezes, & plugs
- Preventing gas migration
- Cementing Calculations
- Cementing Equipment
- Well head Equipment



CEMENTING PRACTICES: PLANNING, EXECUTION AND EVALUATION CONTROL

UETMT-DRG-3-114

Program Duration: 3 days

Program Level: Skill

PROGRAM OVERVIEW

Participants will learn how to design, plan, calculate, and execute successful Casing and Cementing Operations.

TARGET AUDIENCE

- Drilling Engineers who are involved with the planning, execution and evaluation of cementing jobs.

TARGET COMPETENCIES

- Cementing Planning
- Cement Plug Operations
- Primary Cementing Operations
- Laboratory Test Results

PROGRAM OBJECTIVES

A step-by-step overview of Casing and Cementing Practices, the program begins with a brief overview of Casing and Well Planning, then concentrates on Cement materials and slurry design, and finally reviews the theoretical and practical means to both perform the job and evaluate it afterwards. Participants will be able to apply proven techniques to their jobs for immediate benefit.

PROGRAM CONTENT

Introduction:

- Basic Rig Math
- Overview of Casing Design considerations
- Tubular connections and thread compounds

Cement and Cement slurry Design:

- Water requirements
- Temperature and Pressure
- Sulfate Attacks
- Strength retrogression
- Pre-job Testing
- Cement additives
- Special purpose cements
- Mixers and density measurement

Before Reaching Casing Point:

- Casing Inspection and transportation
- Cementing equipment and materials
- Tools and running equipment
- Wellhead considerations
- Hole and mud conditioning practices

After Reaching Casing Point:

- Running Casing and associated equipment
- Circulating before cementing
- Pre-flushes
- Scavenger slurries
- Spacers
- Mixing and displacing rates
- Casing wiper plugs
- Gas intrusion in annulus after cementing
- Pressure testing and landing the casing
- Nipping up and testing BOPE
- Evaluating the cement job
- Drilling out
- Leak-off tests;
- Formation capability tests
- Open hole plugs
- Running and cementing liners
- Squeeze cementing



CEMENTING TECHNOLOGY

UETMT-DRG-3-115

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

Cementing Operations are critical for well life as they constitute the foundations of any gas or oil well. Well Integrity is compromised, unless efficient cementing operations are carried out in every casing job. Like the foundations of a house, Cementing is the basis for an efficient well performance.

TARGET AUDIENCE

- Drilling Engineers, Drilling Supervisors with working experience in Drilling Engineering Operations

TARGET COMPETENCIES

- Primary Cementing Operations
- Cement Placement
- Cement Calculations
- Cement Additives and Mud Removal
- Special Cement Systems

PROGRAM OBJECTIVES

Well Cementing is the process of bonding the pipe to the formation on other operation in drilling or completion process plays as important a role in the producing life of the well as does a successful primary cement job.

PROGRAM CONTENT

- Functions of Cementing
- Cementing
- Cementing Equipment
- Setting up a Cementing Job
- Preplanning
- Bulk handling and stage
- Properties of slurries required for cementing Hole /slurry considerations
- Strength of Cements to support pipe
- Mixing water
- Slurry density
- Cement additions
- Cement accelerations
- Cement retarders
- Last circulation additives
- Special additives for cement
- Casing Equipment
- Considerations during Cement
- Placements Techniques
- Considerations after Cement
- Special Cement situations
- Continued special Cement situations
- Plugging
- Types of Cement plugs
- Placement Techniques
- Testing Cement plugs
- Squeeze Cementing
- Squeeze techniques
- Job Planning
- Squeeze Packers
- Water Control
- Identify the problem
- Design Treatments for Problems
- Infectivity patterns
- Cementing Horizontal deviated Well bores

DEEPWATER WELL DESIGN AND PLANNING

UETMT-DRG-3-116

Program Duration: 3 days

Program Level: Skill

PROGRAM OVERVIEW

Deepwater Drilling can be extremely expensive, with Ultra-Deepwater Rig Spread Rates exceeding an estimated US\$ 300,000 per day in a number of Cases. Reducing these Costs is an absolute necessity to render Deepwater Oil and Gas Developments Economically Viable.

TARGET AUDIENCE

- Operator
- Drilling Manager
- Drilling Superintendent
- Senior Drilling Engineer
- Drilling Supervisor and other interested disciplines

TARGET COMPETENCIES

- Deepwater Drilling Challenges
- Conductors, Surface Casing and Well Design
- Deepwater Rig Surface Equipment and Well Operations
- Drilling Fluids
- New Technologies

PROGRAM PREREQUISITES

- Well Design and Construction Experience
- Offshore Drilling Rig-Site Work Experience and/or Onshore Operations Support are desirable.

PROGRAM OBJECTIVES

The goal of this program is to give participants the Knowledge and Skills required developing safe, cost-effective and efficient well and operations Plans required consistently delivering well and projecting objectives.

The program will also provide participants with skills required to perform essential Deepwater Well Engineering and Well Control Calculations.

PROGRAM CONTENT

- Introduction to Deepwater Well Design and Construction
- Managing Deepwater Drilling Projects
- Deepwater Risk Management and Loss Control
- Deepwater Equipment Engineering and Well Design Considerations
- Designing to meet Deepwater Geology and Environmental Conditions
- Fundamentals of Deepwater Drilling Engineering
- Open Water Drilling
- Deepwater Drilling Engineering
- Deepwater Operations Planning
- Deepwater Contingency Management
- Development Drilling
- Completions
- Well-testing and Abandonment
- Deepwater Well Control Management



DEEPWATER DRILLING OPERATIONS AND WELL CONTROL

UETMT-DRG-3-117

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

This program covers the Operational aspects of Deepwater Well construction.

TARGET AUDIENCE

- Operator: Drilling Manager, Drilling Superintendent, Drilling Engineers, Drilling Supervisors and other interested Disciplines
- Drilling Contractor and Service Company Personnel

TARGET COMPETENCIES

- Planning Operations
- Bop Control Systems
- Hydraulic and Mux
- Annular Preventers
- Hydraulic Connectors
- Well Control
- Wellbore Pressure Testing

PREREQUISITES

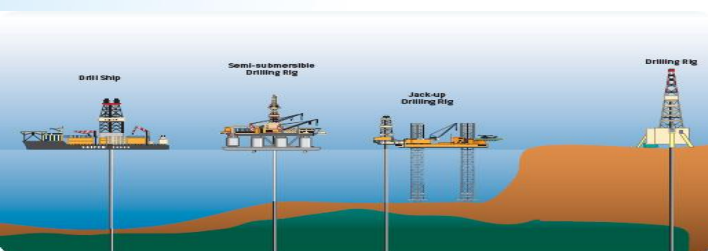
- Working knowledge of Mobile Offshore Drilling units. i.e. Semi-Submersibles, Drill Ships
- Offshore Drilling rig-site work experience and/or Onshore Operations Support

PROGRAM OBJECTIVES

The goal of the program is to give an appreciation of Deepwater Exploration and Development Drilling challenges and explain how to select "fit for purpose" tools, equipment, people and processes required to meet project objectives. Ways of preventing and mitigating deepwater drilling hazards, risks, drilling problems, and project delivery issues and lessons learned from several projects all over the world will be discussed. Deepwater well control management techniques using the IADC guidelines will also be reviewed in detail.

PROGRAM CONTENT

- Introduction to Deepwater Well Design and Construction
- Deepwater Project Management and Logistics Deepwater Rigs and Selection Criteria
- Deepwater Equipment Systems
- Drilling from a Floating Vessel
- Station-keeping
- Wellheads and Casing
- Blowout Preventers
- Risers
- Motion Compensation
- Riserless Drilling
- Deepwater Drilling Fluids
- Deepwater Cementing Operations
- Deepwater Drilling Problems and Hazards
- Well Control Management, Equipment and Techniques
- Emergency Response Planning and Contingency Management



DEEPWATER DRILLING CHALLENGES AND TECHNIQUES

UETMT-DRG-3-118

Program Duration: 5 days

Program Level: Skill

PROGRAM OVERVIEW

This program covers drilling in the offshore and deepwater environment challenges. Types of rigs and rig moving practices are discussed along with drilling equipment and downhole tools. A geology overview is given together with wellbore stability and well design including casing design, drilling fluids and cementing. Well control and sub-sea BOP equipment are covered together with directional drilling and completion design.

TARGET AUDIENCE

- Operator: Drilling Manager, Drilling Superintendent
- Petroleum Engineers
- Operations Geologists

TARGET COMPETENCIES

- Drilling Equipment
- Downhole Tools
- Wellbore Stability
- Well Design
- Well Control
- Sub-Sea Bop Equipment
- Directional Drilling
- Completion Design
- Waterflood Performance Prediction

PROGRAM OBJECTIVES

The goal of this course is to present deepwater exploration and development challenges and take the participants in the journey through the steps on how industry has evolved and how it meets them. Drilling challenges are covered and the selection of "fit for purpose" tools, equipment, people and processes, which are required to meet project objectives.

PROGRAM CONTENT

- Rigs and Equipment
- Mud Systems
- Gas Hydrates
- Geology/Reactive Formations
- Pore Pressure and Low Fracture Gradients
- Riser Volumes/Large Casing/Logistics
- Lost Circulation
- Hole Cleaning
- Well Control
- High Daily Rig Cost
- Drilling Fluid Options
- Dissolution — Hole Enlargement
- Deformation — Plastic Flow
- Well Control
- Recrystallization
- Effects of Temperature
- Effect of Reactive Solids
- Fluid Selection - Factors
- Geothermal Drilling
- Oil-Base Mud Systems
- Water-Base Mud Systems
- High-Temperature, High-Pressure (HTHP) WELL
- High-Density Mud Systems
- High-Temperature Water-Base Systems
- High-Temperature Drilling Fluid Testing
- Milling
- Milling Fluid Options
- Hole Cleaning
- Bird Nests"
- Solids Control
- Guidelines for Milling with Flocculated Bentonite Systems
- Coiled-Tubing Drilling
- Coiled-Tubing Procedures
- Basic Equipment
- Fluids for Coiled-Tubing Drilling Operations
- Through-Tubing Drilling



4
LEVEL

ADVANCED LEVEL

PROGRAM LEVEL	PROGRAM CODE	PROGRAM TITLE	PROGRAM DURATION
ADVANCED LEVEL	UETMT-DRG-4-101	Advanced Hydraulic Fracturing	5 days
	UETMT-DRG-4-102	Advanced Drilling Practice & Wellbore Hydraulics	10 days
	UETMT-DRG-4-103	Advanced Drilling Engineering	5 days
	UETMT-DRG-4-104	Advanced and Emerging Drilling Completions Technologies	5 days
	UETMT-DRG-4-105	Advanced Casing Design	5 days
	UETMT-DRG-4-106	Advanced Directional Drilling Technology	5 days
	UETMT-DRG-4-107	Advanced Drill String Design	5 days
	UETMT-DRG-4-108	Advanced Drilling Analysis	5 days
	UETMT-DRG-4-109	Advanced Well Construction	5 days
	UETMT-DRG-4-110	Advanced Well Completion & Productivity	5 days
	UETMT-DRG-4-111	Managing Well Site Operations	5 days
	UETMT-DRG-4-112	Advanced Drilling Fluids Technology	5 days
	UETMT-DRG-4-113	Well Stimulation- Acidizing and Hydraulic	5 days
	UETMT-DRG-4-114	IWCF & Well CAP	5 days
	UETMT-DRG-4-115	IWCF Well Control	5 days
	UETMT-DRG-4-116	IWCF Well Control Qualification	5 days
	UETMT-DRG-4-117	IWCF Well Control Combined Surface & Subsea Level 3 & 4	5 days





ADVANCED HYDRAULIC FRACTURING

UETMT-DRG-4-101

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

This advanced program is designed for those having a practical understanding of the applications of hydraulic fracturing and who want to increase their expertise. The program will provide the details and discussion of fracturing concepts usually accepted or assumed in fracturing applications. The strengths and limitations of various approaches to fracturing treatment design will be covered. Attendees should leave the Advanced Course with a better understanding of the hydraulic fracturing process and how it relates to post-frac well performance.

TARGET AUDIENCE

Production, operations, and completions engineers who are actively involved in hydraulic fracturing applications and desire a more in-depth understanding of hydraulic fracturing theory and applied concepts

TARGET COMPETENCIES

- Hydraulic Fracturing
- Fluid Displacement Concepts
- Rock Properties and Rock Mechanics
- Fracturing Fluid Mechanics
- Design Fracturing Treatments
- Pre-Frac Injection Test Data
- Real-Time Fracturing Treatment Data

PROGRAM OBJECTIVES

- Better understand rock properties and rock mechanics related to fracturing applications
- Better understand fracturing fluid mechanics and proppant transport
- More effectively design fracturing treatments through better understanding of factors influencing hydraulic fracturing applications
- Use pre-frac injection test data and real-time fracturing treatment data in fracturing applications to define fracture parameters and improve frac treatment design
- Consider factors influencing post-frac fracture conductivity and well cleanup
- Realize the strengths and limitations of existing hydraulic fracturing technology and fracture models
- Expand fracturing applications to fit a wider range of reservoir types and conditions

PROGRAM CONTENT

- Rock properties and fracture mechanics related to the fracturing process
- Fracturing fluid mechanics
- Proppant transport
- Pre-frac injection test analysis
- Fracture closure
- Fracture monitoring and fracture measurement
- Fluid leak-off
- Re-fracturing considerations
- Review of existing fracture modeling software
- Evaluation of post-frac well performance

ADVANCED DRILLING PRACTICE & WELLBORE HYDRAULICS

UETMT-DRG-4-102

Program Duration: 10 days

Program Level: Advanced

TARGET AUDIENCE

Engineers and Operating Personnel who are involved in Drilling, Completion, and/or Workover Operations

TARGET COMPETENCIES

- Well Engineering and Operations
- Rig Types
- Rolling Cutting Bit
- Drilling Fluids
- Well Completion
- Wellbore Hydraulics

PROGRAM OBJECTIVES

Upon completion of this program, participants will have a sound working knowledge of the tasks associated with Drilling Operations. This will include the ability to:

- Identify the Materials and Equipment involved in the various Drilling Tasks
- Perform Calculations and Graphical Interpretations needed to Plan and complete a Drilling Project
- Identify Borehole Stability Problems
- Understand basic Rock Mechanics

PROGRAM CONTENT

- Formation Pressure Prediction
- Fracture Pressure Determination
- Selection of Casing Setting Depths
- Casing Design
- Collapse and Burst Design
- Casing Landing Practice
- API Cement Classes
- Cement Testing and Additives
- Cement Slurry Design
- Subsurface Casing Equipment
- Primary and Liner Cementing
- Bottom-hole Assembly Design
- Rheological Fluid Models
- Wellbore Stability
- Wellbore Mechanics
- Heaving Shales
- Optimization of Bit Hydraulics
- Pressure Drop across Bit Nozzles
- Hydraulic Horse Power
- Hydraulic impact Force
- Cuttings Slip Velocity,
- Flow Calculations
- Kicks
- Surface Warning Signals
- Kick Identification
- Annular and Ram Preventers
- Pressure Ratings and Sizes
- Stack Arrangements
- Accessory BOP Equipment
- Fishing Operations



ADVANCED DRILLING ENGINEERING

UETMT-DRG-4-103

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

A five-day program covering decision making – Why Horizontal, Why extended reach, Complex Trajectory Design, Drill-string and BHA Design, Casing program, Casing Design Considerations, Bit Optimization, Hydraulics Optimization, Mud Design, Hydraulics – Advanced Cuttings Transport Analysis

TARGET AUDIENCE

Drilling Engineers with a good understanding of the principles of Drilling Engineering, Drilling Supervisors with working experience in Drilling Engineering Operations. Participants should have fair understanding of Computers and Standard Software Tools such as MS Excel.

TARGET COMPETENCIES

- Defining Well Objectives
- Fundamentals of Drilling System and Services
- Site Preparation, Construction and Drilling Environment
- Rig Selection

PROGRAM OBJECTIVES

Upon completion of the program, participants will be able to:

- Explain Horizontal and Extended reach Drilling
- Identify the Procedures that are required for Data Analysis and real time Data Analysis
- You find out what Drilling Techniques have worked the best to get the latest Technologies for lower cost.

PROGRAM CONTENT

- Mechanical Methods of Building, Dropping Angle
- Downhole Motors
- Directional Well Planning
- Well Program Design
- Selection of Kick of Point and Methods
- Assembly Selection
- Drilling Horizontal Well
- Long Radius Drilling
- Cutting Removal
- Measurement while Drilling
- Drilling Fluid
- Balanced / under Balanced Drilling
- Coiled Tubing Drilling



ADVANCED AND EMERGING DRILLING COMPLETIONS TECHNOLOGIES

UETMT-DRG-4-104

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

New technologies are constantly being introduced to Drill for Hydrocarbons in a cost-effective, safe and Environmentally Friendly manner that will ultimately contribute to achieving the business objectives of asset teams. It is crucial for both experienced and Senior Engineers, and Wellsite Supervisors, to be aware and knowledgeable in these new technologies in order to optimally apply them in their projects.

TARGET AUDIENCE

- Experienced Drilling Engineers
- Wellsite Supervisors
- Frontline Drilling Management and other E&P disciplines
- Drilling Contractor and Service Companies

TARGET COMPETENCIES

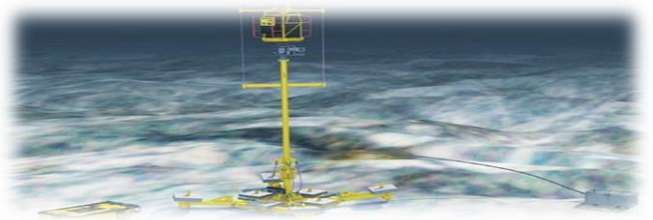
- Drilling Engineering
- Wellsite Operations
- Expandable Tubular
- Rotary Steerable Systems
- Intelligent Drill pipe

PROGRAM OBJECTIVES

The main goal of this program is to provide asset team members with Advanced Techniques for Exploiting Reservoirs to produce more oil faster, cheaper, and at minimum environmental impact, and also to expose participants to the applications, and limitations of Advanced, and Emerging Drilling and Completions Techniques.

PROGRAM CONTENT

- Horizontal and Multilateral Drilling Technology
- Rotary Steerable Drilling and Geo-steering
- HPHT Drilling
- Ultra-deepwater Drilling
- Under-balanced Drilling
- Casing Drilling
- Expandable Tubulars
- 3D-Visualization





ADVANCED CASING DESIGN

UETMT-DRG-4-105

Program Duration: 5 days

Program Level: Advanced

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Senior Engineers
- Team Leaders in Drilling Engineering/Operations

TARGET COMPETENCIES

- Casing Program and Design
- Casing Shoe Depths and Number of Strings
- Hole and Casing Sizes
- Production Casing Strings Design
- Integrated Oilfield Tubulars Procedure Design

PROGRAM OBJECTIVES

Participants will be able to design casings for any Well: Onshore, Offshore, High Pressure and High Temperature Wells, Horizontal and Multilateral Wells.

PROGRAM CONTENT

- Steel Properties and API Casing Strengths
- Fracture Gradient: A Rock Mechanics approach
- Casing seat selection: Graphical methods, refinements, Case histories
- Casing Design criteria: Collapse , Burst, Tension
- Detailed Collapse design: Partial and full Evacuation; when to use each
- Kick Tolerance and Kick Profiles: Industry approach
- Burst Design: Casing full of Gas, Limited Kick Design
- Detailed Tension Design: Self-weight, Shock Loading, Pressure Testing, bending Forces, Thermal forces, Pressure-area method
- Offshore conductor Design
- Production Casing Design: Tubing Leak approach
- Design Factors: Typical Values; what do they mean
- Casing Design methods for: Exploration, Development, Horizontal and HPHT
- Triaxial Loadings
- API Load lines
- Stress Ellipse including API load lines
- Load Cases
- Temperature effects and trapped annular Pressures
- Buckling Analysis
- Sour Gas consideration: Special Casing grades and effects of Temperature, NACE and European Standards
- Connections: API and Premium, methods of selection
- Well Suspension and Abandonment
- Casing Wear
- Complete Well Design

ADVANCED DIRECTIONAL DRILLING TECHNOLOGY

UETMT-DRG-4-106

Program Duration: 5 days

Program Level: Advanced

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Engineering Operations

TARGET COMPETENCIES

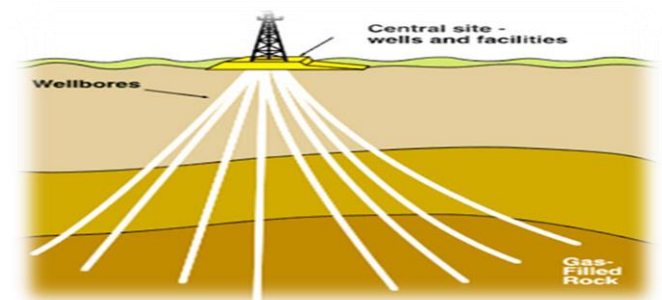
- Advanced Directional Drill Monitor (ADDM)
- Modular Electrically Connected Cable Assembly (MECCA)

PROGRAM OBJECTIVES

Learn to drill a Directional and Horizontal and Hole with a mush confidence as straight one. You find out what Drilling Techniques have worked the best to get the most result for the least cost.

PROGRAM CONTENT

- Mechanism of Building or Dropping Angle
- Mechanical Methods of Building, Dropping and Turning Bit whip stocks
- Down hole Mud Motors Jetting
- Directional Well Planning Jetting
- Types of Well Paths
- Post analysis of Offset Wells
- Well Design
- Selection of Kick off Method
- Assembly Selection
- Drilling Horizontal Wells
- Long Radius Drilling
- Medium Radius Drilling
- Drill Bits far Horizontal Wells
- Cutting Removal
- Measurement while Drilling
- Drilling short Radius Horizontal Wells
- Drilling Fluids
- Balanced /under balanced Drilling
- Multiple Horizontal legs in a single Well
- Coiled Tubing Drilling





ADVANCED DRILL STRING DESIGN

UETMT-DRG-4-107

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

The purpose of this Program is to reduce the probability of Drill Stem failures in Operations.

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Senior Engineers and Team Drilling Engineering's/operations

TARGET COMPETENCIES

- Directional Drilling
- Drill String Design (DSD)
- Drill Stem Tubular Products
- BHA Design in DrillScan Drilling Software (Rotary)
- DrillScan Drilling Software Database Management

PROGRAM OBJECTIVES

To accomplish this goal, the Program summarizes Drill Stem and gives recommended Inspection procedures. The Program covers to moderate practices Angle Well Bores, extended reach and Horizontal Drilling. Loads simple Drill Stem Design for vertical applied by Tension, Combined Torsion, Burst pressure, Collapse Pressure, Compression, Slip and Stability Forces are considered. Design steps to reduce fatigue Damage are also covered.

PROGRAM CONTENT

- Design Assumptions
- Design Objectives
- Fatigue
- Design Factors
- Vertical to Moderate Angles Well Bores:
 - Choosing Drill Collar Size, connection and connection features
 - Determining Torsional Strength of Drill Collar Connections
 - Determining minimum Lengths of Drill Collars and HWDP Section
 - Checking Slip Crushing Forces
 - Calculating allowable and working Tension Loads
 - Calculating maximum permissible length of each drill pipe section.
 - Extended reach Well Bores:
 - Load Predication
 - Load Analysis
 - Jar Placement
 - Fatigue Mitigation and Buckling

- Build and Hold Well Bores
- Buckling initiation Paints low tangent point
- Buckling above Kickoff point below Buckling below Tangent point
- Stabilizers in high Angle hole
- Jar Placement
- Dropping Wellbores
- How Drill Stem Fail
- Drill Pipe failure Prevention Plan
- Drill Pipe tube fatigue Failure
- BHA connections Fatigue Failure
- BHA connection Stress relief I BSR
- Drill crew five second checks

- Drill String care
- Basic Jar Operations
- Pump Open Force
- Cocking/ Tripping the Jar
- Drilling Accelerator
- Jar rules Placement Guidelines
- Down hole Equipment Failure
- Tool Failure Causes
- Factors Influence Tool Selection
- Rig Site Tool Selection/Inspection
- Inspection Methods
- Standard Inspection Programs
- Visual Tube Inspection

ADVANCED DRILLING ANALYSIS

UETMT-DRG-4-108

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

This program is designed to give an overview to all the Drilling Parameters and the Drilling Fluid Impacts on the Formation,

TARGET AUDIENCE

- Drilling Engineers
- Senior Drilling Engineers
- Senior Drilling Rig
- Drilling Managers
- Drilling Team Leaders

TARGET COMPETENCE

- Drilling Performance Analysis
- Daily Drilling Reporting
- Mud Logging Data Interpretation

PROGRAM OBJECTIVES

Participants will find out what Drilling Techniques have worked the best to get the latest technologies result for the lower cost and increase production.

PROGRAM CONTENT

Day 1

- Wellbore Stability

Day 2

- The effect of Drilling and other Fluids on Formation Productivity
- Detecting Abnormal Pressure

Day 3

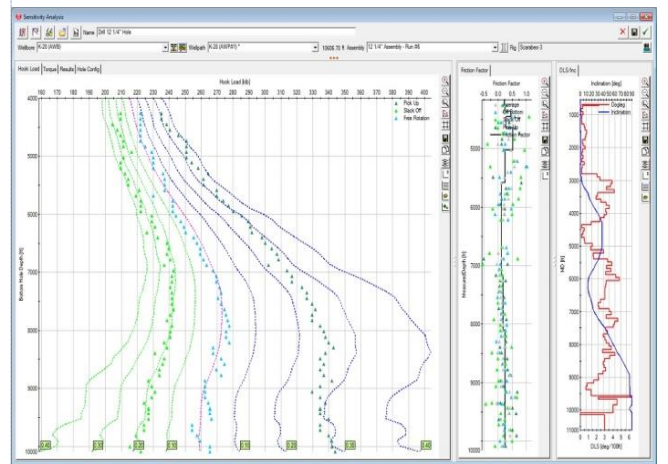
- Directional Drilling
- Horizontal Drilling

Day 4

- Under-balance Drilling

Day 5

- Multi-Lateral Techniques
- Evaluation the best Techniques and General Discussion





ADVANCED WELL CONTROL

UETMT-DRG-4-109

Program Duration: 5 days

Program Level: Advanced

ADVANCED WELL COMPLETION & PRODUCTIVITY

UETMT-DRG-4-110

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

Understanding of Fluid Pressure in Wellbore has made possible improved techniques for well-pressure control and has given drilling engineers more confidence when handling well kicks.

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Senior Engineers
- Team Leaders with over two years' working experience in drilling engineering & operations

TARGET COMPETENCIES

- Well Control
- Well Control Equipment
- Design Surface Equipment
- Pressure Control Procedures
- Non-Classic Well Control Problems
- Fluid Dynamics
- Design Relief Well Operations

PROGRAM CONTENT

- Principles, Preventive Measures, Detection when should a well be shut in Rise in pit volume
- Kicks & Killing Procedures:
 - Drill pipe
 - What happens when Bottom Hole Pressure is held Constant
 - Shut in the well
 - Determining Initial Circulating Pressure
 - Killing a Kick with String on Bottom
 - Low Choke Pressure Method
 - Gas Migration
 - String off Bottom
- Simulated Blowout Preventer Drills
- Testing Procedures procedure
- Bop Test Procedure
- Using tests, Control systems Test
- Bop Control Systems:
 - Pressure rating
 - Bop struck components
 - Struck components
 - Stack arrangements
 - Wellheads and casing
 - Chokes , choke manifolds choke lines , kill lines
- Hydraulic Units
 - Surface Stacks
 - Control Lines
 - Annular preventers
 - Ram preventers
 - Rotating heads and strippers
 - Hand – adjustable chokes
 - Remotely operated chokes , valves
 - Accessory Equipment
 - Kelly cocks , safety valves
 - Pit level indicators
 - Flow indicators
 - Gas detectors. mud handling facilities
 - Formation characteristics

Program OBJECTIVES

You will learn to reduce completion time and costs with the right design and obtain supply reduced later work over expense at the same time. You will find out how many stuck packers are not really stuck- How to improve productivity and reduce tubing costs. Discover how to effectively complete for maximum artificial lift benefit.

TARGET COMPETENCIES

- Well Completion Design and Equipment
- Well Productivity
- advanced well completions (AWC)
- Stimulation and Artificial Lift Methods

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Senior Engineers
- Team Leaders in Drilling Engineering/Operations

PROGRAM CONTENT

- Introduction to Completion Technology
- Factors effects Completion Design
 - Well condition
 - Well depth
 - Formation type
 - Production interval
- Completion Principles
 - Well hydraulics
 - Tubing stretch selections -Gas Velocity
 - Partial pressure
- Basic Completion equipment
 - Packers
 - Permanent packers
- Retrievable packers (Hydraulic- Hydrostatic Mechanical)
 - Flow control equipment
 - Safety valves
 - Completion accessories (expansion joint flow coupling – blast joint)
- Packer and tubing effect
- Packer design and goals
- Hydraulics of Packers
- Tubular Elongation ad shortening Temperature
- Ballooning
- Helical Buckling
- Type of completion:
 - Single /single selective.
 - Dual
 - Lateral
 - Monobore
 - Gravel pack
- How to design & set up a completion
 - Tubing movement calculations and analysis
- Metal Selection
- Elastomer Selection



MANAGING WELL SITE OPERATIONS

UETMT-DRG-4-111

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

Drilling and Service personnel struggle daily with the oil and gas industry's inexperienced labor force. This inexperience at the wellsite results in excessive non-productive time, trouble time, and invisible lost time. These, in turn, lead to unsafe incidents and excessive costs to the operator, the contractor and the service industry. *Managing Wellsite Operations* teaches participants to apply organizational learning processes, wellsite technical limits analysis and more efficient use of all resources at the wellsite.

Good Well Planning is essential. However, in spite of very good planning and design there exist geological and reservoir uncertainties, surface and downhole environmental constraints, failed equipment, and misunderstood practices coupled with inexperienced wellsite personnel that are creating unsafe work conditions and driving up drilling cost. Participants will learn how to identify and mitigate hidden risks that often are overlooked during the planning, design and execution phases of a drilling operation. The participant will learn how to dissect and analyze an operational plan. In addition, applying operational innovations and advanced motion and time processes will lead to improved efficiency of wellsite rotary operations and individual wellsite tasks. Participants will be introduced to models, templates, techniques, and real case studies that can be used on the job.

TARGET AUDIENCE

- Operations Managers
- Drilling Managers
- Drilling Superintendents
- Drilling Supervisors
- Wellsite Drilling Engineers
- Rig Managers
- Rig Superintendents Contract Drilling Engineers

TARGET COMPETENCIES

- Well-Site Operations-Geology
- Surface - Subsurface Parts of the Well Program
- Well Monitoring Program
- Wellsite Performance

PROGRAM OBJECTIVES

By the end of the course, the participant will be able to:

- Define a well's technical limit and implement a plan that will work to reach it
- Identify and mitigate hidden risks to reduce lost time
- Apply practical organizational learning techniques to benefit from lessons learned
- Build effective rig site teams

PROGRAM CONTENT

- Critical elements of effective planning and management of drilling operations
- Design and implement a program "checklist" for critical well drilling operations
- Investigate various elements of a drilling operation and mitigate visible and hidden risk
- Investigate and perform an analysis of trouble time events, non-productive time occurrences and invisible lost time for a drilling operation
- Dissect the drilling plan and apply total task analysis to wellsite activities
- Enhance your knowledge of organizational learning systems and transfer lessons learned
- Perform technical limit analysis to improve wellsite performance
- Measure and performance monitoring of the drilling operation
- Maximize the inexperienced resources through total task analysis in a case study to reduce drilling costs and improve safety

ADVANCED DRILLING FLUIDS TECHNOLOGY

UETMT-DRG-4-112

Program Duration: 5 days

Program Level: Advanced

TARGET AUDIENCE

- Drilling Engineers
- Drilling Supervisors
- Senior Engineers and Team Leaders in Drilling Engineering/Operations

TARGET COMPETENCIES

- Drilling Fluids
- High Performance WBM
- Oil and Synthetic Based Mud Products and Systems
- Lost Circulation
- Virtual Hydraulics and Real Time Measurements

PROGRAM OBJECTIVES

The program emphasized on the primary functions of Drilling Fluids, the test procedures used to determine whether the Drilling Fluid has suitable properties for performing these functions and the Common additives used to obtain the desirable properties under various Well conditions.

PROGRAM CONTENT

- Functions of Drilling Fluids
- Drilling Fluid Testing Procedure
- Water Base Drilling fluids
- Contamination of Water Base Drilling fluids
- Work over Fluids
- Formation Damage
- Packer Fluids
- Bore Hole Problems
- Corrosion
- Hydraulics
- Mechanical Solids Control
- Oil base Muds





WELL STIMULATION- ACIDIZING AND HYDRAULIC

UETMT-DRG-4-113

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

- The program presents the latest in Well Stimulation Technology and focuses on Acidizing and Hydraulic Fracturing.
- It provides an overview of Formation Damage Problems and suggests means for overcoming them or minimizing their affect.

TARGET AUDIENCE

The program is ideal for Well Completion, and Production Engineers; valuable for Supervising Engineers and Geologists interested in well performance; and for operations personnel, such as field foremen or field superintendents or anyone who wishes to become familiar with these two well stimulation methods.

TARGET COMPETENCIES

- Reservoir Rock Mineralogy
- Well Selection For Acidizing
- Acidizing and Other Chemical Treatments
- Rocus Mechanics, Fluids Mechanics, Additives, Proppant
- Fracture Geometric Model
- Fracture Pressure Analysis
- Fracture Data
- Fracture Design

PROGRAM OBJECTIVES

- Participants will acquire valuable insight into maximizing production and well performance by understanding relationships between production and formation damage.
- They will also learn proper selection and design of stimulation treatments and gain knowledge from specific acidizing and hydraulic fracturing examples presented in the program.
- Choice of treatment additives, peripheral materials, and equipment is also covered.

PROGRAM CONTENT

- Acidizing objectives; reasons for acidizing wells.
- Acid Types.
- Use of additives.
- Formation Analysis.
- Wellbore cleanout.
- Matrix Acidizing - Sandstone and Carbonate formations.
- Diverting Materials and Techniques.
- Gas Assist.
- Scale Removal and Control.
- Paraffin Removal and Control.
- Acid Treatment Execution.
- Guidelines for on-site supervisors.
- Hydraulic Fracturing: Objectives; background, well selection guideline.
- Concepts and Terminology.
- Mechanics of Hydraulic Fracturing.
- Fracture Geometry. Fracturing Fluids, Additives. Proppant Selection Considerations.
- Production Increase for Fracturing.

IWCF & WELL CAP

UETMT-DRG-4-114

Program Duration: 5 days

Program Level: Advanced

PROGRAM OBJECTIVES

The objectives of this program are to clarify How to Control down-hole formation fluids, make student familiar with Well Control System and better handling of the Well Control situations.

PROGRAM CONTENT

- Causes of Kick
- Kick Detection
- Pressure Concept and Calculations
- Calculations
- Simulator Exercises
- Converting Pressure to Mud Weight
- Volumes, Height Relation and Effect on Pressure
- Drop in Pump Pressure as Fluid Density Increase During Well Control Operations
- Maximum Well Bore Pressure Limitations, Procedures, and Alarm Limits
- Simulator Well Control Procedures
- Alarm Limit, Pre-Recorded Well Control Information, Flow Checks, Shut-in, Well Monitoring During Shut-in Response to Massive or Total Lost Circulation
- Tripping
- Well Control Drills: Types and Frequencies
- Formation Competency, Stripping Operations
- Shallow Gas Hazards, Gas Characteristics and Behavior
- Density, Migration
- Expansion, Compressibility and Phase Behavior
- Solubility in Mud, Fluids, Mud Properties, Constant Bottom Hole Pressure Well Control Methods, Well Control Kill Sheet and Procedures
- Simulator Well Control Procedures
- Equipment
- Well Control Related Instrumentation
- Bop Configuration
- Manifold and Piping, Valuing Auxiliary Well Control Equipment
- Simulator Test
- BOP Closing Unit: Function and Performance
- Testing / Compilation Pressure Control Equipment
- Pressure and Function Tests
- Well Control Equipment Arrangements
- Sub Sea / BOP Equipment
- Equipment Test
- Well Control Test





IWCF WELL CONTROL

UETMT-DRG-4-115

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

- Obtaining IWCF Certificate is an obligation for all key personal at Rig sick.

TARGET AUDIENCE

- Drilling Supervisors
- Tool Pushers
- Drillers
- Drilling Engineers Contractors
- Service Company Personnel in both Offshore and Onshore Operational Environments.

TARGET COMPETENCIES

- Well Design
- Well Intervention
- Tubing Stress Analysis
- Cementing
- Well Logging
- Well Control and Loss of Well Integrity

PROGRAM OBJECTIVES

- The objective of the program is to provide a good understanding of the fundamental of well control that can be applied to most well control operations.
- The program describes industry recognized standards and practices and basic well control procedures. Trainees can execute real well control exercises.

PROGRAM CONTENT

Day 1

- Primary Control
- Pre-Kill Sheet
- Shut in Methods
- Kick Indicators
- Driller's Methods
- Simulator Exercise
- Review Exercise

Day 2

- W & W Method
- Gas Migration
- Kick While Drilling
- Influx Behavior
- Trapped Gas
- Horizontal Well Control
- Horizontal Kill Sheet
- Kick off Point
- End of Build
- Simulator and Workshop

Day 3

- Review Exercise
- Pipe Rams
- Annulars
- Diverters
- Accumulators
- Bop Control Systems
- Koomey Unit
- Simulator & Workshop
- Review Exercise

Day 4

- Gas Behavior During:
- Driller's Method
- W & W Method
- Stripping
- Volumetric Method
- Kick Tolerance
- Kill Problems

Day 5

- Equipment Exam
- P & P Exams

IWCF WELL CONTROL QUALIFICATION

UETMT-DRG-4-116

Program Duration: 5 days

Program Level: Advanced

PROGRAM OVERVIEW

This program is designed to fulfill the requirements for International Well Control Forum (IWCF) Well Control Qualification. It is assumed that the individual attending this program has taken the prerequisite program, "Preparation Program for IWCF Well Control Certification"

TARGET AUDIENCE

- Individuals needed IWCF Certification

TARGET COMPETENCIES

- IWCF Well Control Certification

PROGRAM CONTENT

Day 1

- Introduction, Registration and program orientation Test Pressure concepts Causes and warning signs of kicks* Practical- Introduction to simulator* BOP Equipment BOP equipment questions* Set homework- hydrostatics & equipment Q'S

Day 2

- Test and homework review Shut-in procedures and recorded data- simulator kick* Circulation and well control- drillers method, gas migration. Theory then Practical; Simulator exercise & kill sheet- Wait & Weight* Shut in Procedures questions. Gas Migration.

Day 3

- Homework review Kick whilst tripping* Well control methods & problem- theory & simulator circ* Volumetric methods Simulator assessment & Multi-choice.

Day 4

- Homework review BOP equipment assurance- Ram & accumulator volumes Organizing and directing well control operations* Practical, some questions
- Kill problems- Multi choice questions* Equipment problems- Multi choice questions* Identify weaknesses

Day 5

- Homework & Review-depends on time exam is to be Examination





IWCF Well Control Combined Surface & Subsea Level 3 & 4

UETMT-DRG-4-117

Program Duration: 5 days

Program Level: Advanced



**International
Well Control
Forum**

PROGRAM OVERVIEW

The Well Control course addresses basic the principles and the theory of well control along with the most commonly used well control techniques.

TARGET AUDIENCE

- Individuals needed IWCF Certification

TARGET COMPETENCIES

- IWCF Well Control Certification

TARGET AUDIENCE

- Designed for drillers, Assistant Drillers and Drilling Engineers who work onshore/
- offshore and who are preparing to attend the certified IWCF course, and/ or those who
- want a thorough knowledge of well control techniques.

PROGRAM OBJECTIVES

- Theoretical & Practical Course for surface installation at Driller & Supervisor Levels. The
- course is designed to enhance the understanding of the fundamentals of well control
- that can be applied at most well control operations, and to prepare candidates for IWCF
- testing.

In addition, delegates will be able to understand the followings:

Surface Principles & Procedures

1. Overview
2. Introduction to Well Control
3. Barrier Concept
4. Risk Management
5. Causes of kicks
6. Kick Warning Signs and Indicators
7. Circulating Systems
8. Fracture Pressure and Maximum Surface pressure
9. Influx Characteristics and Behaviour
10. Shut In Procedures
11. Well Control Methods
12. Well Control during Casing and Cementing Operations.
13. Well Control Management
14. Contingency Planning

Surface Equipment

1. Blowout Preventers
2. Associated Well Control Equipment
3. Choke Manifold and Chokes
4. Auxiliary Equipment
5. Barriers
6. Testing
7. BOP Control Systems





WHY CHOOSE UETMT?

- UETMT is the Number ONE choice in the provision of Competency Management Consultancy Services
- We are innovators in providing Learning Solutions to fill identified Competence Gaps
- Our team of experts bring with them a breadth and depth of experience in successful and sustainable Competency Management
- We employ the best of the best thought-leaders committed to the improvement of Competency across the Oil & Gas Industry
- UETMT is offering Complete spectrum of Training and Competency Development
- Our training is designed to create an environment and experience where you can accelerate and LIVE THE LEARNING EXPERIENCE when training others.
- Our Instructors are world-class approved trainers, with extensive experience in the Middle East.
- Our international experience working with clients in various countries has spanned from individual course delivery to complete multi-year workforce nationalization programs. We understand the needs of our multi-cultural learners especially in the oil and gas context.
- By combining expert-led courses, in-class projects customized for your asset challenges, field and lab courses that provide hands-on learning experiences, industry leading software tools, and one-on-one mentoring, UETMT training blends a targeted skills-development program that aligns your team's abilities to your strategic objectives
- UETMT works with International bodies that provide access to global standards and certification. This ensures that our products and processes match global requirements and add a level of assurance to our clients, whilst enabling them to adopt standards that provide real business benefit to them and their employees. As an example:
- UETMT is an Approved Center of the Scottish Qualification Authority (SQA), a UK Governmental Organization, offering Customized Award Programs (SVQ Level) credit rated onto the Scottish Credit and Qualifications Framework (SCQF). 
- UETMT is approved by the Engineering Construction Industry Training Board (ECITB), a UK organization 
- UETMT is ISO Certified by QSR**
 - ISO 9001: 2008- Quality Management System (QMS)
 - ISO 14001: 2004- Environmental Management System (EMS)
 - OHSAS 18001: 2007- Occupational Health & Safety Management System (OHSAS)



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SQA Approved Centre
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